Changing Dynamics of Tobacco Production and Exchange in South India: Towards a Socio-Ecological Analysis

Nithya Natarajan

Thesis submitted for the degree of PhD in International Development

2019

Department of Development Studies

SOAS, University of London

Abstract

This thesis explores the declining production and exchange of tobacco in South India through a theoretical lens that is attendant to the changing dynamics of socio-ecological factors. The thesis builds on a broader literature of research which has highlighted the uneven and complex process of agrarian change that is underway across Tamil Nadu, and India more broadly, to focus on how this process can be understood through changing dynamics of ecology, articulated with shifting social and political factors. In order to do so, the thesis combines recent approaches from Green Marxism with critical agrarian literature on India's agrarian transition, to develop a theoretical lens that asks how social and ecological factors are articulated in shaping change. The thesis draws on fieldwork undertaken in 2014-2015, comprising semi-structured interviews with 68 tobacco farmers and traders, two focus groups with labourers, observation, informal encounters with rural actors, and further interviews with relevant people from government and non-governmental organisations. Through analysis, the thesis highlights how tobacco's success is linked to shifting regimes of appropriating nature, and how this is in turn shaping its decline in the current era, as water and soil wealth become more expensive to appropriate. The thesis ultimately suggests that analyses of agrarian change must be more attendant to the ways in which agrarian production draws on the wealth of nature, the specific processes and labour relations required to do so in different geographies, how these are reshaped by political economy factors, and how nature is in turn affected through such processes. The concluding chapter draws together insights from the thesis to suggest paths ahead for future research in this vein.

Contents

List of Tables

Chapter 3

Chapter 5

Chapter 6

Chapter 7

Chapter 8

List of Figures and Images

Chapter 3

Chapter 4

Chapter 5

Chapter 6

Chapter 7

Chapter 8

Acknowledgements

This thesis has been written with the support and guidance of so many people. Firstly, I am hugely indebted to the 68 tobacco farmers and traders who took the time to be interviewed, and the many others in *Kongunadu* who spent time with me and allowed me to develop a sense of the region and of tobacco. Their patience, generosity and good humour allowed me to really enjoy my time in the field, and to develop the insights that went on to form the basis of this thesis.

I am incredibly grateful to my supervisor, Dr Alessandra Mezzadri, for her guidance over the past four years. Despite changes in the topic and approach of my work, she has remained steadfast in ensuring that I remain focused, and has opened my eyes to so many of the ideas and concepts that have made it into my final thesis. I am also very grateful to Dr Jens Lerche and Dr Subir Sinha for stepping in this past year and reading through my thesis, particularly to Dr Lerche for reading the full thesis at a critical stage and offering constructive guidance to ensure that I remained on track; and to Dr Leandro Vergara-Camus for his continued help this past year. I am also very grateful to Dr Judith Heyer for sharing her considerable wisdom on *Kongunadu, b*oth in the field and through reading chapters in London; the thesis has benefitted greatly from her insights.

My field research was only possible due to the many family members and friends that were so generous with their time and hospitality. Thanks in particular go to my aunt and uncle, Ramya and Raja, for allowing me to stay and take over part of their house for 7 long months, and to my cousins Amrith, Anush, Shruthi and Preethi for their support both logistical and emotional. A huge thank you also to Priya aunty who provided me with a warm and friendly house in Coimbatore to base myself in, and helped me to understand the region so much better, and to Deepu, for being such an incredible research assistant and friend, and for not laughing too hard at my terrible Tamil early on. Thank you also to Professor Bala at Tamil Nadu Agricultural University, whose guidance really helped me to understand the field at an early stage.

SOAS has been an incredible place to write this PhD and I have learned so much from the people I have met here. Special thank yous go to my comrades and friends on the Fractional campaign for an amazing and energising four years of struggle and friendship, particular this final year. I want to thank in particular my fellow UCU reps, James Eastwood, Carrie Benjamin and Kathryn Nash, all of whom were inspirational figures. Thank you also to resilient women who have been here until the very end this past summer – Ezgi Unsal, Zoe Goodman, Mehroosh Tak, and Jo Tomkinson, who have made the end of the thesis such a pleasure, and to those that have read parts of my thesis and helped me so much in my thinking – Aditya Ramesh and James Brown.

A huge thank you goes to my parents, who showed me first-hand how to work hard and dedicate yourself to something that inspires you. Finally, to Jake, for everything, I can only begin by saying thank you.

This thesis is dedicated to my late grandmothers – Rajalakshmi and Saroja – for teaching me about resilience, hard work and good humour, and for never allowing me to stray too far from the language and culture of home.

Chapter 1
Introduction

Tobacco has been a flourishing cash crop in agriculture in Tamil Nadu, south India, for over two centuries, and its trajectory continues to rise at an all-India level. Yet like agriculture in the state more broadly (Government of India et al. 2015), its production and circulation is in decline (Government of Tamil Nadu 2014). Crucially, its historical success as a cash crop that combines a short duration with high market returns conceals a story of social and environmental degradation. This thesis explores the ways in which Tamil Nadu tobacco's historical rise, and its recent decline, can begin to be understood through an analytical lens that is attendant to how tobacco farmers and traders have drawn on the work of labour *and* the wealth of nature. In doing so, the thesis looks to address a perceived lacunae in literature from the critical agrarian studies tradition (Bernstein and Byres 2001) on the environmental dynamics of capitalist agriculture (Bernstein 2010b; Lerche 2013).

Accounts of agrarian change in Tamil Nadu from this body of work highlight a number of factors. Among these are the historical shift from agrarian to industrial capital among particular caste communities (Chari 2004), the impact of concurrently tightening rural labour markets on cultivation costs (Heyer 2016b), the agency of labour in looking to move away from rural areas for work (Carswell 2013; Donegan 2018), the opening-up of spaces within the industrial sector for smaller farmers to shift to petty industrial capital (Mahadevan and Vijayabaskar 2014), and the role of state welfare and support for agriculture and industry in different ways (Vijayabaskar 2010; Gorringe 2012a; Vijayabaskar and Menon 2017). Within this picture, issues of environmental change in Tamil Nadu feature repeatedly, albeit largely as context or a small, separate, empirical factor (Heyer 2000, 2016b; Djurfeldt et al. 2008; Vijayabaskar 2010). This is despite significant evidence of long-term ecological degradation in the region. In 2015, the state faced its worst drought in 140 years (Govindarajan 2017), following decades of increasingly poor access to water for farmers, due to erratic rainfall, groundwater depletion, and issues in securing water rights from Karnataka for access to Kaveri river water (Yamunan 2017). The state's lowering water table (Chinnasamy and Agoramoorthy 2015) and the apparent increase of erratic rainfall (Bal et al. 2016) are particular areas of concern for farmers across the state, that have in recent years undertaken repeated protests against a perceived lack of state support for the increasing risks association with agricultural production (Kumar 2017). Thus the question arises, along with the numerous social

factors explored in literature cited above, to what extent is the changing environment shaped by, and affecting, agrarian change in the state? To begin answering this question, this thesis examines how ecology is implicated in the production and exchange of tobacco in Tamil Nadu.

Tobacco was first introduced to India by Portuguese traders in the seventeenth century, primarily in Goa and the kingdom of Adil Shahi, located in present-day Karnataka (K. S. Reddy and Gupta 2004). Following its introduction, a historical account by Mughal Emperor Akbar's Ambassador, Assad Beg, appears to confirm that the crop almost immediately found its way into the royal court (K. S. Reddy and Gupta 2004). The crop also became popular across a range of classes, with peasants and labourers also reported to consume tobacco habitually by the end of the 17th century (Gokhale 1974). Today, India is the second largest consumer of tobacco in the world, and the second largest producer (Eriksen et al. 2015; Tobacco Board India 2017). Indian tobacco production is composed of unusually heterogeneous plant varieties, given that India comprises one of the most diverse markets for tobacco commodities globally (Gokhale 1974; K. S. Reddy and Gupta 2004; Tobacco Board 2013). Alongside cigarettes, the Indian market comprises several 'traditional' varieties that are more prevalent: beedis – small, hand-rolled cigarettes without filters, cheroots – thin and cigar-like with a tendu leaf used to roll the tobacco, hookah – tobacco smoked through a communal water pipe, and chewing tobacco – different forms of cured leaf that are chewed and spit out (K. S. Reddy and Gupta 2004). The country's export market has grown in recent decades, it is now the second largest exporter globally (Tobacco Board India 2017). The majority of export income, 57%, comes from Flue-Cured Virginia leaf (FCV) tobacco[1], which is used for cigarettes. Thus notably, plant varieties that are used for more 'traditional' commodity forms such as chewing and hookah tobacco are not exported, to be consumed by local and regional consumers instead.

Tamil Nadu tobacco comprises these latter varieties, with all tobacco produced in the state having been used for cheroots, and more recently chewing tobacco. Thus markets for Tamil Nadu have been largely local, but also historically successful. In fact, the success of tobacco in the western reaches of the state – the region of 'Kongunadu'[2] – reflects to some extent the trajectory of

[1] The remainder is non-FCV leaf tobacco (14%), and tobacco commodities (29%) (Tobacco Board 2013); thus the majority of the export market remains unmanufactured.

[2] My research took place in villages and towns across five current-day districts of western Tamil Nadu: Coimbatore, Tiruppur, Erode, Salem and Dindigul (Govt. of Tamil Nadu 2016). The majority of this region came under the former region of Kongunadu during the pre-colonial and colonial era, and was split into smaller districts post-Independence; thus I use the term Kongunadu to refer to my research field as a whole (Baker 1984a).

agriculture in the region more broadly. Kongunadu is historically renowned for its flourishing small-scale agriculture, with small farmers[3] generating high profits through investments in irrigation, and stringent labour control (Baker 1984a; Heyer 2016b). Tobacco in the 19th and through much of the 20th century was one of the cash crops that flourished in the region, and the high returns it offered at market meant that it lent itself to this investment-driven form of farming (Buchanan 1807; Baker 1984a). Today, western Tamil Nadu, along with the rest of the state, is undergoing a process of agrarian change, as the declining agrarian economy is superseded by the industrial and services sectors (Department of Evaluation and Applied Research 2014). The volume of tobacco produced, as well as the number of people engaged in production, are also both in decline (CTRI, Vedasandur 2014; Government of Tamil Nadu 2014). The crop thus offers a strong focal point from which to study the shifting dynamics of the agrarian economy in the state, as its historical success, characteristic as a high-risk high-reward crop, and the current move away from it, are all emblematic of the narrative of successful commercial farming in Kongunadu in the past two centuries (Baker 1984a; Chari 2004; Heyer 2016b).

In looking to understand the dynamics underpinning tobacco's decline, and to specifically foreground the role of environmental change, this thesis articulates analysis from critical agrarian studies with insights from 'green' Marxism – a more recent body of work that looks to re-establish Marxist political economy as a theoretical approach that is attendant to ecology. The thesis first establishes its foundations within critical agrarian studies. It suggests that agrarian change in India is uneven, with process of accumulation, stagnation, and pauperisation characterising the agrarian economy (Lerche 2015). Agriculture overall is in decline, and the growth of the non-farm economy is now decoupled from agriculture, such that millions of labouring households find themselves unable to reproduce themselves through agriculture, and are forced into fragmented and geographically expansive forms of social reproduction (Bernstein 2006b; Harriss-White 2008, 2014; Lerche 2013). The thesis then looks to incorporate issues of environmental change into analysis of this broader process of change, through a focus on the dynamics of change in the production and circulation of tobacco in Kongunadu. In seeking to theorise the role of environment, I draw first on the work of Burkett (1996, 1999) to highlight where ecology is located in the process of commodity production, and therefore what forms of nature are appropriated by capital (Marx 1976) through labour within the production process. I go on to draw on Moore (2015) to explore how the appropriation of particular forms of nature reshapes and depletes nature in turn, and to examine the particular technologies and forms of labour control required to

[3] This term will be more fully defined in Chapter 2.

engender the appropriation of nature over time. I further draw on the work of Baglioni and Campling (2017) to develop this latter point, and focus on how processes of controlling and ordering nature to extract its wealth are articulated with processes of labour control, as labour remains the interface between man and nature (Marx 1976). Finally, I draw on the work of Foster (2000) and his excavation of Marx's broader analysis of capitalism as a system that is underpinned by the extraction of wealth from nature and surplus value from labour, leading to the spatial reshaping of town and country, to think about how agrarian change in Tamil Nadu more broadly can be understood as socio-ecological, this latter analysis is confined to the concluding chapter.

This framing offers scope to begin unpacking broader processes of socio-ecological change from the case of tobacco, with a view to setting out a research agenda for future directions in the conclusion of this thesis. The thesis avoids offering an environmentally-deterministic analysis, thus tobacco is studied through a lens which draws on a rich tradition of critical agrarian studies in the region to foreground issues of caste and gender dynamics, state policy, the non-farm economy, and the changing trends of tobacco retail and regulation, in explaining change (Vijayabaskar 2010; Carswell and De Neve 2013a; Guérin 2013; Harriss-White 2014; Pattenden 2016a). The thesis further draws on the work of Harriss-White (1996, 2007) and her approach to studying agricultural commodity markets to explore how the production and circulation of tobacco are articulated, and how environment is implicated across these processes.

The thesis ultimately sets out a number of insights which are developed in the concluding chapter to speak to broader debates on agrarian change in India and worldwide. The thesis firstly explores the historical dynamics of agrarian production and accumulation in Kongunadu. It points out the need for groundwater extraction as far back as the medieval era, suggesting that the form of farming in this tract is partly a result of the ecological requirement of farming in general, rather than simply a characteristic of the caste community that dominate the region. The thesis goes on to highlight how the regime of appropriating the region's water has shifted over decades by the penetration of rural and later industrial capitalism, leading to more commercial farming. It also focuses on the role of the state in developing and subsidising technologies that enabled greater appropriation of water.

Moving on to analysis of the specific dynamics of tobacco production, the thesis highlights in particular the difficulties and risks associated with procuring and paying for water in the current era, and highlights further how this coupled with difficulties in procuring rural labour has rendered farming an undesirable livelihood. Looking to the productive activities undertaken downstream of cultivation by traders, the thesis compares the appropriation of nature across the two dominant

markets in the region, those of Jaffna-cured and Sun-cured tobacco. In doing so, the different forms of appropriation required to draw wealth from very different forms of natural energy are highlighted, namely a renewable and non-renewable energy source. Through this, the thesis argues for the centrality of studying the ways in which different forms of natural wealth are appropriated in commodity production, as a means of understanding shifting dynamics of accumulation. The thesis finally concludes by taking these insights forward to highlight fruitful directions for further research in critical agrarian studies.

The thesis is structured as follows. Chapter 2 sets out the theoretical lens taken forward in analysis, and situates this in the particular context for first India then Tamil Nadu. Chapter 3 goes on to outline the research methods employed to undertake fieldwork, and document the process itself, including issues arising in the field, and limitations. Chapter 4 offers a historical overview of agrarian change and tobacco cultivation in Kongunadu over the 19th and early 20th century. Chapter 5 looks to the mid-20th century and then to the current era, to focus on agrarian change and the environmental costs associated, as well as the process of uneven deagrarianisation[4] that is underway today. Chapter 6 looks at tobacco production, drawing on field findings to explore issues affecting deagrarianisation among tobacco farmers and traders, and then looking to shifting dynamics of cultivation. Chapter 7 explores the second largest tobacco market in the state for Jaffna-cured tobacco, looking closely to dynamics of decline, and shifts in the regulation and consumption of tobacco in the state. Chapter 8 does the same for Sun-cured tobacco, albeit through highlighting how this tobacco market, the most dominant in the state, is in a less drastic state of decline than that of Jaffna. Finally, in drawing a comparison across these two markets, the concluding chapter looks to summarise the insights of this thesis and set out areas for further research.

[4] This term can refer to either a structural shift from an agrarian to industrial economy, or at a micro-level to the exit of farmers and labourers from agriculture into non-farm sectors, driven either by better opportunities or by agrarian distress. The next chapter will clarify these distinctions more clearly and indicate the ways in which this term is used in this thesis.

Chapter 2

Towards a socio-ecological analysis of tobacco and agrarian change in Kongunadu

1. Introduction

This chapter will argue that agrarian change in western Tamil Nadu should be understood as a socio-ecological process. The process of change that is currently underway in the state has been the subject of significant analysis, particularly with regards to the burgeoning of industrial and services sectors and concurrent labour absorption (Carswell and De Neve 2013a; Heyer 2016b), the impact on agriculture from tightening rural labour markets (Vijayabaskar 2010; Heyer 2016b), the shifting forms of local and state politics cementing power for labour and small farming communities (Gorringe 2012a; Vijayabaskar and Wyatt 2013), and the broader outcomes of this for rural regions (Harriss *et al.* 2010, Heyer 2016a). Within this picture, numerous recent studies and newspaper articles have highlighted the region's lowering water table, erratic rainfall, disputes over water sources with neighbouring states, and the demise of state support for irrigation infrastructure, as drivers of rural change (Vijayabaskar 2010, Srinivasan et al. 2014, Heyer 2016a, Lakshmana 2016, M. Rajshekhar 2016). This chapter looks to articulate these two areas of concern within a single framework, which will be deployed to analyse tobacco in Kongunadu and elucidate the processes of socio-ecological change that offer some explanation as to the rise and now demise of this cash crop.

In doing so, the chapter highlights what is understood by 'agrarian change' in Tamil Nadu, looking to the context of the agrarian question in India and Tamil Nadu to better situate the particularities of change vis-à-vis the region in question. The chapter goes on to develop this framing and highlight how capitalist production can be understood as socio-ecological, first by drawing theoretically on the literature of green Marxism, and then by highlighting again how this is relevant to India and Tamil Nadu. In doing so, the chapter sets out a framing of socio-ecological agrarian change which operates at two spatial levels. Firstly, with regards to tobacco, the chapter highlights how to locate ecology in the production and exchange of tobacco (Burkett 1996, 1999), how nature and labour are articulated and indeterminate in specific ways in the process of production (Baglioni

and Campling 2017), how specific indeterminacies are ameliorated to enable wealth and surplus extraction respectively for the production of tobacco (Moore 2015; Baglioni and Campling 2017); and how these processes reshape nature in turn (Moore 2015). Secondly, these insights are deployed to think more abstractly at a regional level about what this tells us with regards to agrarian change as socio-ecological process more broadly (Foster 2000).

This chapter is structured as follows. Firstly, I look at the literature on agrarian change and environmental change, to highlight a perceived lacuna and to set out the framework that forms the foundation to the thesis. I subsequently move on to green Marxism, looking to how insights from this body of work can be articulated with the agrarian change framing. The subsequent two sections take this mixed framing forward in the context of India and Tamil Nadu respectively, focusing on agrarian change and ecology, and beginning to think about how the two are articulated in processes of historical and current change.

2. Agrarian change and the environment

In seeking to understand and explain changes taking place in agriculture in the current era, divergent views on how to conceptualise social change and its interrelatedness to environmental change have emerged. Whilst agriculture is in decline in terms of its economic provenance in national economies across much of the Global South, the number of people engaged in it as farmers and/or labourers has not dropped as rapidly. Instead, a pattern of livelihood diversification is increasingly dominant among rural households, who often combine profits from commodity production with wages from farm and/or non-farm work to make ends meet (Breman and Van der Linden, 2015, Araghi, 2009).

In seeking to explain this process of rural social change, Bernstein has argued that a process of class differentiation is underway, giving rise to multiple 'classes of labour' (Bernstein 2006a, 455); namely diverse 'forms' of labour 'who depend – directly *and indirectly* – on the sale of their labour power for their own daily reproduction' (ix Panitch and Leys 2000; c.f. Bernstein 2006a, 455; emphasis in original). Bernstein suggests that this is driven by the historical shifts in rural areas across much of the Global South, where market penetration during colonial regimes, subsequent state-led systems of planned development, and later market liberalization, have meant that former peasants that were understood to be largely autonomous from the market are now reliant on markets, both on and off-farm, to some extent (see also Bernstein 2010a). Put simply, the expansion of global capital has led to a formidable expansion of the labour force, but it has also led to also to its great segmentation, and to a rise in jobs paying below the basic living wage (Arrighi and Moore 2001; c.f. Bernstein 2006a, 455). Evidence therefore suggests that burgeoning classes

of labour are forced to reproduce themselves through increasingly insecure, informal, and fragmented forms of work.

This thesis is contested most notably by scholarship which argues for the continued relevance of the 'peasantry' as an analytical category to describe the millions of small and marginal farmers across the world, that sustain their household through a combination of commodity production and waged labour (Desmarais 2002; McMichael 2007; van der Ploeg 2008, 2010). This body of work suggests that contrary to there being emerging classes of labour, the central concern for progressive scholars of the countryside today should be around land rights and food sovereignty, or put simply: enabling peasant farmers to minimise their dependence on markets as a means of making ends meet. This latter body of work, termed 'food sovereignty' literature henceforth, is contested by Bernstein, on a number of levels that lie outside the remit of this thesis (see Edelman et al. 2014; and Bernstein et al. 2018 for an overview). For our purposes here, the treatment of ecology in both bodies of work will be briefly outlined.

Looking first to food sovereignty literature, peasant production is understood to be a more ecologically *sustainable* form of production, in contrast to *industrial* or *modern* agriculture, which involves the development of productive forces. Furthermore, the entrance of such modern technologies is understood to represent a rupture from a prior ecologically-sustainable form of agriculture under the peasantry. As van der Ploeg argues, (2010, 4): 'Modernisation converted land into a commodity, symbolically as well as materially, creating a rupture with the past… The many agronomic interrelations between farming and the land were increasingly eliminated'. Conversely, he suggests that "Land represented autonomy and the opportunity [for peasantries] to create a livelihood through often hard and bodily struggles with a hostile environment, capricious cattle, climatic risks, oppressive authorities, malign priests, and adverse markets' (2010, 3). This view is contested by a range of scholarship. Literature from the field of political ecology has highlighted the complex and varied ways in which 'modern' farming techniques can shift farming practices in a given geographical area, thus contesting the notion that modern agriculture is a unitary concept or has homogenising effects (see for example Ariza-Montobbio et al. 2010; Moreno-Peñaranda and Kallis 2010). On another note, Bernstein has argued that according to food sovereignty scholars, 'virtuous farming is practised mainly by the poorest farmers who confront major ecological and social constraints rather than 'choosing' to farm how they do and 'choosing' to remain poor, pace the virtues of 'frugality'' (2014, 1049). This latter view thus highlights how food sovereignty literature risks romanticising the difficulties and complexities of small-scale farming in conditions of ecological difficulty. Numerous other scholars have also contested the periodization of food sovereignty literature to argue that the so-called 'rupture' between modernity and pre-

modern peasant farming in terms of the relationship between humans and nature is not borne out through empirical data (see for example Agrawal and Sivaramakrishnan 2000; Ludden 2000; Sivaramakrishnan 2009 on India).

By foregrounding arguments around the ecologically-depleting and intensive nature of modern farming, literature drawing on a food sovereignty lens offers insights into the costs of developing agro-technologies deigned to increase productivity in farming (Wittman 2009; Altieri and Toledo 2011). This is arguably an area of concern that is under-explored in critical agrarian studies literature. Bernstein has argued that materialist political economy must take more seriously the ecological dimensions of agrarian development, particularly 'when the evidence is likely to disturb inherited conceptions of the unqualified benefits of forever 'developing the productive forces" (2010b, 305). In a similar vein, Lerche notes how 'Regarding environmental issues, it is probably more correct to say that classical political economy has only just begun to take them seriously' (2013, 385).

In many cases, agrarian and/or rural trajectories in the countryside are greatly mediated by agro-ecological factors, and these mediate the environment in turn, and this is certainly cited in critical agrarian studies literature. However there remains scope for more developed analyses of the contributions of nature in agrarian development which foreground the contributions of and impacts upon nature within agricultural production. I thus turn here to the work of green Marxism to move towards developing a means of theoretically articulating agrarian questions with ecology in studying tobacco production and exchange in Kongunadu.

3. Insights from ecological thinkers

Dispelling the perception of 'Marx's dogma' as suggesting '…that everything Nature offers is gratis' (Georgescu-Roegen 1971, 2; c.f. Burkett 1999, 91); a number of green Marxists revisited Marx's work from the late 1990s onwards to uncover his insights into the ecological underpinnings of capitalism. Green Marxists have both highlighted Marx's considerable perceptions into how capitalism shapes and is impacted by nature, and also how his method can be understood as a socially and ecologically-focused form of analysis, given his explicit attention to how natural resources are appropriated by man. These insights thus offer a means of understanding the role of ecology within agrarian change more explicitly. In particular, Burkett's work (1999) offers a means of locating the specific moments of nature's 'productivity' in the commodity process, whilst Foster (2000) highlights how the understanding of ecology in commodity production can be expanded to examine how ecology is implicated in the spatial development of capitalism. More recently, Moore's 'world ecology' lens (2015) highlights how particular forms of agrarian capitalism can be

understood as having been shaped as a means of appropriating nature's wealth in a particular region, and how this affects nature in turn, whilst Baglioni and Campling (2017, 2451) draw on the insights of the aforementioned writers to foreground how capital seeks to order nature, as it does labour, in order to appropriate nature's wealth; and how these processes of ordering are articulated. Arguably, either directly or indirectly, these contributions further complicate our understanding of processes of agrarian change.

The first writer of note in this field is Paul Burkett – his rendering of Marx's labour theory of value offers a means of employing Marx's method to explain interrelated processes of social and ecological change within the capitalist value relation[5]. It should be noted here that Burkett's work draws on a highly abstracted reading of Marx, and therefore must be treated with some caution in offering precise elucidation. Burkett vehemently argues against the notion that Marx's method is anti-ecological, suggesting instead that Marx identifies three conceptions of nature's productivity (Burkett 1996, 334–5):

- The 'general natural preconditions of all labor and production (e.g. air breathed by laborers)';
- The 'means of production produced by nature prior to their being appropriated and/or processed by labor';
- And 'the special contributions of nature in those production processes (e.g. in agriculture) where "the subject of labor is for a longer or shorter time subjected to natural processes . . . during which the labor-process is entirely or partially-suspended"' for example natural processes of growth.

Burkett highlights the fact that it is capital, and not Marx, that devalues the contributions of nature to the commodity process, thus capital appropriates nature's wealth and does not account for it within its legitimation of value (Burkett 2014; see also Marx 1976). As Burkett goes on highlight, the term 'appropriate' is used far more widely by Marx than exclusively to indicate the process by which capital benefits from the surplus value engendered through the labour process, where labour power creates a commodity that is of greater value than the raw materials and labour that went into producing it (Marx 1976). In addition, outside the waged labour relation, feminist thinkers in particular have highlighted how historical accumulation has been forged through the appropriation

[5] John Bellamy Foster has argued that Burkett's re-reading of Marx's value theory represented the start of a 'second wave of ecosocialism', which for the first time 'conceived ecosocialism not as a successor to Marxism but as a deeper form of ecological praxis arising out of the materialist foundations of classical Marxism' (Foster 2014).

of the unpaid work of women and through non-waged labour relations such as slavery (see Mies 1986; Federici 2004). Yet with regards to nature, Burkett argues that Marx's use of the term appropriation refers to the fact that the production of natural use values such as air, water and soil, does not require waged labour, or exploitation. He states: 'capitalistic free appropriation only means that no wage labour is required to produce certain conditions serving as material or social vehicles of value production and accumulation' (2014, 73). Burkett goes on to suggest that it is the forces of production required to appropriate nature that are costly, in that they need to be produced through the exploitation of waged labour; for example the water wheel is required to appropriate water, to use Marx's own analogy (1976). Therefore, Burkett argues that capital's shaping of the environment can be understood as its strategy for appropriating nature in a manner that is conducive to value-generation; 'Capitalism only validates particular moments of the people-nature metabolism as necessary parts of socio-material reproduction insofar as they profitably objectify exchange values' (Burkett 1996, 342). In articulating his insights with the concerns of aforementioned agrarian debates, Burkett indicates how ecology is materially located in agricultural commodity production – natural preconditions, means of production, and natural processes. Furthermore, he highlights Marx's distinct use of appropriation with regards to nature, where it indicates that nature's contributions are forged without labour power, though the process of appropriation may itself require labour power and thus exploitation in order to appropriate nature's gifts. Appropriation, whilst also used to indicate both the extraction of surplus value through the labour process and the contributions of unpaid labour, thus offers a marked indication of nature's particular contributions to the commodity process. Finally, Burkett begins to shine light on how capital seeks to shape ecology to enable wealth extraction and, through this, value generation[6].

Jason Moore's more recent work in advancing what he terms a 'world ecology' approach moves beyond Burkett's[7] ontological distinction between soil and worker vis-à-vis value, to suggest that value is co-constituted by the exploitation of paid labour *and* the appropriation of unpaid

[6] Tony Weis makes a similar argument in relation to industrial agriculture at a global level, he suggests that 'Throughout history the long-term viability of farm landscapes has depended upon the maintenance of functional diversity in soils, crop species (and seed germ plasm within species), trees, animals and insects to maintain ecological balance and nutrient cycles.' … this changed under capitalism and industrialisation, when farming moved towards the tendency of simplifying numbers of species and their interconnections, through increased use of 'synthetic fertilizers, agro-chemicals, enhanced seed varieties, farm machinery, concentrated feedstuffs, animal antibiotics and hormones, and the expansion of irrigated systems, which allowed industrial techniques to override previous ecological constraints' (2007, 29).

[7] It should be noted that Moore's thesis is set up as being contrary to the work of Burkett and Foster (addressed later in this section) in a number of ways (see Foster 2014). I choose to draw here instead on broader aspects of their work which I would suggest are complementary.

work/energy, both from human and extra-human natures[8] (Moore 2015, 68–70). Moore collapses the ontological separation of man and nature to suggest that (Moore 2015, 13); '…capitalism has survived not by destroying nature (whatever this might mean), but through projects that compel nature-as oikeios to work harder and harder—for free, or at a very low cost'. 'Nature-as-oikeios' (a trope already deployed by Maria Mies, 1986) or simply the 'oikeios' is defined as 'a way of naming the creative, historical, and dialectical relation between, and also within, human and extra-human natures' (Moore 2015, 35). It is thus a conceptual means of ontologically unifying humans and nature, where Burkett (and Foster) still stresses a substance dualism (Malm 2017) between the social and the ecological. Moore's conceptualisation of the 'oikeios' thus offers a decidedly monist ontological understanding of humans and nature[9]. Moore's intervention ultimately seeks to reframe value theory around the distinction between paid and unpaid work, and within these categories, to collapse the distinction between humans and 'extra-human natures'.

Much of Moore's theory lies outside the focus and remit of this thesis. However, a number of insights prove useful. At a more abstract level, and for our purposes here, Moore's work highlights the fact that capitalism both shapes and is materially forged through the particular requirements of appropriating environmental resources in a given region. In articulating this with agrarian theory, Moore's lens foregrounds how particular forms of agrarian capitalism emerge through particular regional ecologies, thus highlighting how the uneven geography of agrarian capitalism partly reflects the uneven geography of regional environments. He also suggests that agrarian capitalism is shaped by how capital reorganises nature to appropriate its wealth more 'cheaply' in Moore's rendering; and how nature is in turn refashioned through this process. As such, capitalism emerges through ecology, and ecology is in turn refashioned by capital. Agrarian capitalism as a socio-ecological process is therefore continually evolving and geographically uneven.

Baglioni and Campling's (2017) recent work takes forward the ideas of green Marxists to develop a theoretical framing of natural resource industries (such as agriculture) within Global Value Chain

[8] Within this conception, 'work/energy' refers to 'the "capacity to do work" by human and extra-human natures' (2015, 14), and 'appropriation' to the utilisation of unpaid forms of work/energy. The distinction between 'paid' work and 'unpaid' work/energy is defined as follows: 'Wage workers are exploited; everyone else, human[8] and extra-human, is appropriated' (Moore 2015, 54).

[9] Moore's thesis follows a long line of Green thinkers that have debated the so-called Cartesian binary of nature and society, ontologically, epistemologically and materially (see Malm 2017 for overview). It is not within the remit of this thesis to address this debate; suffice to say, Moore's particular monist ontological rendering of the nature/society relationship is somewhat contested by fellow Green thinkers (Malm 2017; see for example Foster 2016; Nayeri 2016).

(GVC) analyses[10], thus offering a path forward to studying commodities through a socio-ecological lens. In arguing for an approach that de-fetishizes commodities in natural resource sectors, they ask us 'to recognise that natural resources are a *socio-ecological product,* they are the outcome of a social relation of production and one which is based on the exploitation of labour, which revolves around the appropriation of unpaid nature (the 'hidden abode of production')' (2017, 2444; emphasis in original). In understanding ecology as articulated with the labour process, or rather understanding the labour process as 'the very interface between nature and its commodification', they explicitly focus on how capital simultaneously appropriates nature's wealth and surplus value from labour in commodity production.

Crucially, the authors suggest that 'ecological indeterminacy can greatly affect the social indeterminacy of the labour process and shape the antagonism between employers and employees' (Baglioni and Campling 2017, 2446–47). Indeterminacy vis-à-vis the labour process is understood as the 'lack of total control over labour… expressed in antagonistic relationships between employers and employees' (Baglioni and Campling 2017, 2446); thus drawing directly from a legacy of Marxian literature on labour resistance and labour control (for example see Thompson and Smith 2000). In relation to the indeterminacy of nature, the authors argue that '…the history of capitalist agriculture can be read as a permanent struggle to standardise, control and simplify nature and the uncertainties of natural environments through continuous socio-technological innovation' (Baglioni and Campling 2017, 2446–47). This develops what Burkett and also Moore highlight – the ways in which the specific technics of capitalist production both emerge in response to, and in turn refashion, nature. Baglioni and Campling ultimately suggest that the process of seeking to order, and through this appropriate, from nature must be cognisant of the ways in which nature remains ungovernable on the part of capital, and how this indeterminacy also shapes processes of labour control and labour resistance. In articulating this with critical agrarian studies, their conceptualisation of indeterminacy highlights how agrarian change is shaped by strategies of labour control and procurement – which are already central to agrarian literature – alongside and even, articulated with, strategies to appropriate nature.

[10] This approach is part of a broader literature with different strands entitled 'Global Commodity Chain', 'Global Value Chain' (see Bair 2009) and 'Global Production Network; approaches (see Coe 2012). Despite having broadly divergent interests in terms of theoretical underpinnings and normative assumptions, much of the critical focus of this literature lies with understanding how increasingly globalised systems of commodity production are governed, and developmental outcomes within these for those structurally confined to the lower end (Kaplinsky 2004; Selwyn 2013). This thesis does not explicitly use value chain approaches because tobacco in Tamil Nadu is part of a domestic rather than global value chain.

Finally, looking to agrarian change and ecology at a broader level, Foster (2000) follows in the tradition of Burkett[11] to suggest that Marx's theory of value coherently combined ecology, labour and value, further linking this to the spatial dimension of a capitalist society, wherein urbanisation led to increased reliance by cities upon large-scale rural productivity (Marx 1976, 637–38; cited in Foster 2000, 155–56);

> *'Capitalist production collects the population together in great centres, and causes the urban population to achieve an ever-growing preponderance. This has two results. On the one hand it concentrates the historical motive force of society; on the other hand, it disturbs the metabolic interaction between man and the earth i.e. it prevents the return to the soil of its constituent elements consumed by man in the form of food and clothing; hence it hinders the operation of the eternal natural condition for the lasting fertility of the soil… [A]ll progress in capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil; all progress in increasing the fertility of the soil for a given time is a progress toward ruining the more long-lasting sources of that fertility… Capitalist production, therefore, only develops the technique and the degree of combination of the social process of production by simultaneously undermining the original sources of all wealth—the soil and the worker.'*

Marx clearly equates (at a broad level) the impact of capital upon 'worker' and 'soil' through the verb 'robbing', suggesting that both are seen to be exploited – in the Marxian sense of expropriating value – by capital. This is further affirmed when he states that 'the soil and the worker' are 'the original sources of all wealth'[12]. This process of value appropriation is linked to a spatial understanding of capitalism, where the rift between town and country, resulting from the concentration of labour for industrial production in urban centres, leads to increased pressure on rural lands to produce food for urban dwellers. Thus the 'metabolic interaction between man and earth' is broken, and the soil is asked to produce increasing amounts without sufficient replenishment as a result of capital's drive towards expanding production. Foster's work on excavating Marx's 'metabolic rift' theory allows us to better explain broader processes of agrarian change through a socio-ecological lens. That is, to articulate urban industrialisation with the intensification of agriculture, and through this the increased demands made upon the soil. As such,

[11] Foster and Burkett have written together on several occasions, most recently Foster and Burkett (2016)

[12] Marx primarily looks at 'soil' in terms of ecology, only offering brief further comments on coal reserves, forests and other areas of concern (Foster 2000, 165). However soil was the chief ecological concern of his era in England, and thus can be taken to represent ecology in a broader sense.

in drawing his insights into the broader agrarian concerns set out earlier, ecology is shown to be an articulating factor in broader processes of agrarian change.

3.1 Towards a socio-ecological conceptualisation of agrarian change

This thesis draws together insights from Burkett (1996, 1999), Foster (2000), Moore (2015), and Baglioni and Campling (2017) to elucidate processes of agrarian change through a socio-ecological lens, with regards to the case of tobacco in south India. The frame operates at two levels – studying tobacco at a micro-level, informed by empirical substantiation, and thinking about agrarian change at a regional level, informed by insights from studying tobacco.

Specifically, at a micro-level, I draw on Burkett (1996, 1999) to better understand how to locate the environment in a process of agricultural commodity production: in the means of production and special contributions that forge tobacco production, with the 'natural preconditions' that contribute to the (re)production of labour not being a focus of this thesis. This offers a basis from which to appreciate the complexities of material 'ecology' in agricultural commodity production, and to understand the particular ways in which nature's wealth is being 'appropriated' in the production process (Marx 1976). I also draw on Moore (2015) to develop my insights from Burkett and think more broadly about how the character of tobacco production in Kongunadu has emerged as a means of appropriating the region's ecology, or rather, the specific measures undertaken to appropriate natural resources. This involves a focus on the types of technologies and labour control strategies deployed to enable farmers to continue appropriating nature, and the ways in which consequent environmental change refashions such strategies. In doing so, I look to move beyond the notion of a 'rupture' between man and nature put forward by food sovereignty literature, and to focus instead on the continual, shifting interrelatedness of man and nature over time. I also aim to develop literature from critical agrarian studies which foregrounds shifting regimes of exploitation, labour control, and labour markets in Kongunadu (Chari 2004; Carswell and De Neve 2013a; Mahadevan and Vijayabaskar 2014; Heyer 2016b) and look instead to how strategies to control labour and nature co-exist and are articulated. In this vein, I draw on and further develop Baglioni and Campling's (2017) concept of 'indeterminacy' as a means of understanding how labour and nature are articulated in agrarian capitalism, to interrogate what the specific indeterminacies are in the case at hand, and how these are addressed. Put simply, by drawing on insights from these authors, we can understand changing labour relations as being articulated with environmental change. By doing so, we can then think more clearly about how to articulate labour and nature within an analysis of commodity production and through this, agrarian

change, such that the environment is not considered as simply an additional factor alongside labour, but as being intrinsically moulded *by* and *through* labour relations.

Finally, at a macro-level, I draw on Foster (2000) to suggest that in exploring the phenomenon of livelihood struggles among proliferating classes of labour (Bernstein 2006a), we need to ask how particular strategies of social reproduction by labour and accumulation by capital are affected by the appropriation of nature's wealth, and how nature is in turn refashioned through this process. This means being attendant to how small farmers and classes of labour are implicated in processes of environmental change, and how the changing environment in turn affects their social reproduction and/or accumulation. Such a focus would enable us to begin to develop a more holistic understanding of how the ecological and social are interrelated in processes of change, and move beyond arguably polarised discourses of 'peasant' production as environmentally normative, or continually developing productivity-raising technologies in agriculture as a means of enabling development. This latter area of focus is largely confined to the concluding chapter of this thesis, which looks to how the preceding micro-level analysis offers a platform for future research.

The remainder of this chapter looks to agrarian change in India and Tamil Nadu, and links this to the theoretical framing set out here in order to highlight the coherence between questions of ecology and agrarian change within the specific regional context that this thesis studies - Kongunadu.

4. Agrarian change in India

Agrarian change in India has been the subject of fierce debates since the 1960s, just over two decades after its independence from the British Empire. The first significant body of work to emerge on the subject focused on whether Indian agriculture could be considered capitalist, and the nature and character of agrarian capitalism in different regions of the subcontinent. This literature can be subsumed within what is known as the 'Modes of Production debate' (A. Thorner 1982). This debate coincided with the onset of the 'Green Revolution' across the country – a programme of state-sponsored agricultural intensification policies that enabled initial spikes in agricultural productivity, thus accelerating agrarian transition in many regions across the country (A. Thorner 1982). Whilst the debate remained inconclusive in terms of establishing the key characteristics (or, for a few authors, even the existence) of agrarian capitalism in India, it foregrounded Marxian analysis as a crucial focal analytical lens through which to understand agrarian change in the Indian case, highlighting 'a variety of new issues and contradictions beyond what the classical theoretical and conceptual framework of agrarian change had anticipated'

(Mohanty 2016, 20). Most of all, the debate established the central relevance of class differentiation for analysing and understanding patterns of agrarian change in the Indian countryside.

Since the 1990s, the debate has shifted its focus towards the impacts of globalisation on Indian agriculture, and its implications for social change at a local level. Still, it has kept its focus on class (and regional) differentiation. Even under globalisation, the process of agrarian change across the country is uneven and heterogeneous, with different regions and states experiencing different levels of exposure to global markets (Lerche 2013), and others experiencing relative marginalisation. Contrary to depictions of a homogeneous peasantry under general distress (e.g. Patnaik 2011, Shiva 2016), studies of accumulation in different Indian states have in fact highlighted a deepening process of class differentiation from the 1970s (T.J. Byres 1981) with specific castes and classes continuing to accumulate in the current era, and others facing pauperisation (Lerche 2013, 2015; Harriss-White 2014). This uneven geography of agrarian capitalism is in part driven by differences between states, as the federalised nature of Indian governance affords state governments a significant degree of autonomy in terms of shaping state-level capital accumulation (Tillin 2013). However as Harriss-White has argued (2017), state boundaries provide a limited means through which to fully understand the specific geographies of uneven development across the country. Through mapping modes of surplus appropriation across the country, she finds that neither agro-ecological boundaries not political borders offer a fully-coherent means of understanding the regional geographies of surplus extraction that emerge. There are clear regional patterns which surface through such mapping which demonstrate this, for example, the participation of both Scheduled Castes (SCs) and Scheduled Tribes[13] (STs) in markets is incredibly low in Kerala and Tamil Nadu, despite these states having a reputation for decidedly pro-poor politics and in the case of Tamil Nadu, a historically-strong anti-caste movement leading to increased affirmative action. Harriss-White ultimately urges us to take space seriously in analysing trajectories of agrarian change, drawing on the work of Lefebvre to suggest that '…space itself is constitutive of social processes' (Harriss-White 2017, 54).

In looking more closely at the geography of uneven development across India, there are some broader patterns that we can distinguish. Firstly, agriculture is in decline across the country, both vis-à-vis its contribution to the national/state economy, and in terms of labour absorption. In

[13] These are terms deployed by the Indian government. 'Scheduled Caste' denotes all Dalit or former-'untouchable' communities across India, and 'Scheduled tribe' denotes all Adivasi communities. However the application of such terms is itself highly contested in recent decades, with different caste groups seeking to earn reclassification as SC and ST, in order to avail themselves of the benefits afforded to such groups through state-sponsored affirmative action policies such as quotas in education and political institutions (Jaffrelot 2006).

terms of Gross Domestic Product (GDP), the contribution of the agriculture sector has dropped from 19% in 2004/05 to 14.6% in 2010/11, whilst industry has remained relatively constant at 27.9% in the same period, and services has risen from 53% to 57.5% (GOI 2016, 39). The percentage of agricultural 'workers' (understood as 'cultivators' and 'labourers') has also decreased from 60.5% of India's total workforce in 1981 to 54.6% in 2011 (GOI 2016, 15). There is thus an uneven process of deagrarianisation underway.

The concept of 'deagrarianisation' has emerged relatively recently in development discourse, and refers to various paths through which agriculture may be in decline as a share of a national economy, and/or people engaged in agriculture may shift away from it. The use of the term, and related paths of deagrarianisation differ considerably, but there are overall two ways in which the term is deployed. Firstly, to indicate structural change, referring to a decline in agriculture in terms of its contribution to the national economy and to livelihoods resulting from productivity increases in agriculture and the growth of industry. Secondly, to describe livelihood reorientation out of agriculture and how this links to shifts in both the farm and non-farm economies. Crucially, such paths can both be 'positive' in reflecting increased productivity in an agricultural sector, or 'negative' indicating agrarian decline for people's livelihoods and a resultant move out of agriculture.

For example, structural, historical deagrarianisation in industrial nations such as England, which saw both agriculture declining as a share of national income, and the number of people engaged in agriculture as a livelihood decline rapidly during the 18th and 19th centuries, is largely the result of productivity increases in agriculture and the shift of agrarian peasantries into industrial labour, thus highlighting a structural rendering of the term 'deagrarianisation' (Brenner, 1978). Yet more recently, research on deagrarianisation in the late 20th century across the Global South has highlighted more complex and contradictory paths of change from a livelihoods perspective. understood as 'a process of: (i) economic activity reorientation (livelihood), (ii) occupational adjustment (work activity), and (iii) spatial realignment of human settlement (residence) away from agrarian patterns' (Bryceson 1996, 99). Bryceson (1996) argues that in the case of sub-Saharan Africa, despite poor growth in the industrial sector, rural households are increasingly diversifying their income into non-farm sources, mainly into a petty rural services sector that is not yet linked to global markets, as a means of mitigating the risks associated with subsistence-led production in agriculture. As such, deagrarianisation represents a process borne neither of agrarian nor industrial growth, rather of risk-mitigation by precarious semi-subsistence producers. Rigg et al (2012) adopt a similar conceptual lens in studying processes of rural change in the east Asian countryside in the post-liberalisation period, and offer a different picture of deagrarianisation. Their analysis

highlights the fact that whilst a move away from agrarian livelihood-orientation is underway in the two study villages, located in north-eastern Thailand, it is driven by declining returns from agriculture and increased opportunities for remuneration in burgeoning industries. Households remain rural in their location, but younger members of the household commute to urban work, thus the character of the 'rural' is changing as a result (Rigg, Salamanca, and Parnwell 2012). Specifically, farmers are becoming 'geriatrified' (2012, 1476) and households and villages become dis-embedded 'as social and economic relations are stretched across space' (2012, 1470), but rural households are also materially better-off as a result of deagrarianisation. Pritchard et al (2010) highlight a similar process of deagrarianisation to that of Rigg et al. in two villages in northern India, one in Himachal Pradesh and the other in Uttarakhand. They suggest that agrarian change in these villages is centred on rural livelihood diversification rather than spatial resettlement, and thus highlight the continued importance of land as a form of security, subsistence, and livelihood, despite the overall turn away from land-based production as the main form of remuneration (Pritchard, Gracy, and Godwin 2010).

In the overall Indian case, the extent and nature of deagrarianisation is geographically uneven and complex, in that there are both 'winners' and losers' among those that are leaving agriculture. In states such as Kerala, Tamil Nadu, West Bengal, Punjab and Haryana, there has been a reduction in the proportion of agricultural labour vis-à-vis the state's overall workforce, and a concomitant rise in manufacturing employment (Lerche 2015)[14]. This fits a more classical model of agrarian transition, drawing on the work of Byres (1977), which highlights the process of agrarian surplus being reinvested to drive industry, yet as Lerche notes, it is very difficult to specifically suggest that this is necessarily the case, as calculations of state-level surplus from agriculture reveal no clear correlation with levels of state industrialisation. Rather Lerche (2013) argues that the classical agrarian question of whether agriculture will provide sufficient surplus for industrial growth has been bypassed in India, as the proliferation of international financing for industrial and services-led growth from the 1980s onwards has made the transfer of agrarian surplus irrelevant to the growth of these sectors.

Furthermore, agrarian accumulation persists in India for some groups. Contrary to analyses which depict a homogeneous agrarian distress across the country (Shiva 2016), Lerche (2015, 51) highlights how accumulation is taking place for certain groups in certain regions, or more

[14] This analysis is taken from Lerche's 2015 paper however it should be noted that data used largely refers to 2009/2010 and is therefore almost a decade old. However there are no updated versions of Lerche's study, and the broader depiction he puts forward remains robust.

specifically 'the best-off groups in the best-off states'. Rural capitalists are understood to be either farmers that both generate a surplus through the sale of commodities, produced through the hiring of labour power, or landlords that own large pockets of the best land in villages, and either lease out land or hire-in labour to undertake cultivation (Ramachandran 2011). Alongside these rural capitalists are merchants. The notion of productive merchants is antithetical to a widely-held belief among critical agrarian scholars in India that merchants are only ever unproductive for capital in agriculture (see Chattopadhyay 1969 for example). This view draws from Marx's own theorisation of what he terms 'merchant's capital' – that is, capital which is accumulated by merchants that do not produce agrarian commodities themselves (Marx 1981). Marx argued that merchant's capital was necessary in the early stages of agrarian capitalism in enabling consumers to connect to producers, however as capitalism developed, it became unproductive because it was not generated through any physical or value-generating changes to commodities (Marx 1981; Harriss-White 2007). Furthermore, merchants are not understood to be linked to production, thus they do not reinvest their generated surplus in the expansion of agrarian capital in any way (Lenin 1964; Harriss-White 2007). However as Banaji (2010, 2016) has argued, this view of merchant's capital fails to acknowledge the difference between its theoretical conceptualisation and actually-existing forms of merchant capital, or commercial capital, which are also progressive for agrarian transformation, and often involve value-generating activities. Harriss-White makes a similar point in her own research on merchants in Tamil Nadu and West Bengal (Harriss-White 2013, 28),

> *'Transport links production and consumption and so 'produces' the commodity in space – at the point of consumption. Without transport there would be no commodity to consume. Processing clearly changes the nature of the commodity and is productive… storage prevents natural deterioration and wastage, by preservation it also 'produces' the commodity over time and by doing this, it is productive'*

Productive merchants are in fact a key figure in agrarian accumulation in India, and are part of the broader picture of rural accumulation (for instance see Harriss-White 1996, 2007; Banaji 2016).

This picture of overall accumulation and 'winners' and 'losers' varies geographically with regards to land size, levels of accumulation, the use of agro-technology, levels of agro-industry, and extent of non-farm income (T.J. Byres 1981; Harriss-White 2007; Ramachandran 2011; Lerche 2015). For example, agriculturalists in Punjab enjoy the highest levels of agrarian income, likely to be due to both the legacy of the Green Revolution in this area (also Haryana and eastern Uttar Pradesh), and the notably larger land sizes in these states as compared to the rest of the country (Lerche 2015). In other former Green Revolution states such as Tamil Nadu and West Bengal where small land

sizes prevail, there still exists evidence of agrarian accumulation, albeit on a different scale to that in Punjab, and largely through the cultivation of high-value cash crops (Narayanamoorthy 2006; Lerche 2015).

In explaining this regional differentiation further, and in centralising the productive role of merchants, Harriss-White (2007) argues that agricultural markets offer a strong focal point from which to understand how dominant forces downstream of agrarian capital – merchants, trading firms and the state – are shaping agrarian development. Through longitudinal research on rice markets in West Bengal, Harriss-White suggests that the monopoly power of large, mercantile firms, increasingly backed up by the state, and dominated by the wealthy Marwari caste community, were central to understanding why despite a considerable growth in export-oriented rice production, rural poverty in West Bengal persists. She focuses in particular on how markets act as an arena for the extraction of resources from agriculture, and the exploitation of labour and petty producers (see Harriss-White and Jan 2012). Thus power downstream of production itself, or rather the way production and circulation are articulated with one another, is crucial to understanding accumulation and exploitation in agricultural commodity production. Furthermore, Harriss-White points to the importance of what she terms 'forms of social regulation through non-market institutions' in mediating markets, thus centralising the role of caste and gender in shaping power, and through this, processes of exploitation (Harriss-White 2007, 304). The 'systems' approach to markets that Harriss-White (1996, 2007; Harriss-White and Jan 2012) puts forward thus foregrounds markets as a means of studying the way farmers, landlords and merchants are articulated in processes of exploitation and accumulation, mediated by the state and 'non-market' forces.

Alongside agrarian accumulation, there exists both stagnation and pauperisation for other groups in Indian agriculture. Looking first to stagnation, despite the expansion of agrarian and industrial capitalism, research has revealed the persistence of an unstable class of petty commodity producers (PCP), households that are understood as combining 'the class "places", or locations, of both capital and labour: in farming, capital in the form of land, tools, seeds, fertilizers and other chemicals, and labour in the form of families/ households' (Bernstein 2010a, 103). In 2009, 53% of all 'livelihoods' in India were classified as 'self-employment, smallholder production, own-account enterprise, household production, cottage industry or micro-enterprise' (Sengupta et al. 2009; c.f. Harriss-White 2014, 988). In fact, Harriss-White has argued that there is a proliferation of PCP in the Indian context, suggesting that they are expanding by 'multiplication' rather than

expansion[15], and that there is no evidence of any accelerating process of proletarianisation[16] alongside this, rather that the proliferation of PCP is characteristic of capitalism in India today (2014, 990, see also 2018) (2014a, 990). Chandrasekhar and Ghosh (2007) have explored India's 'self-employed' workforce – those that are not undertaking contracted, waged labour, but are reproducing themselves through informal economy jobs – through analysis of National Sample Survey and National Census data. Contrary to expectations of self-employment highlighting 'the inherent dynamism of economic activity' (Chandrasekhar and Ghosh 2007, 7), they show that such work is likely to reflect the particularly poor returns available through waged work. They also suggest that the 'self-employed' comprises both agrarian petty producers, and more predominantly those reproducing themselves through the non-farm economy in urban and rural areas, thus highlighting that the petty production and the stagnation that Harriss-White refers to exists beyond the farm economy alone. Certainly there is some evidence that it is landless labourers and smallholder farmers that are increasingly dominant in rural India rather than PCP (see Djurfeldt and Sircar 2017), though more work needs to be done in this regard.

In terms of pauperisation, there is clear evidence that in certain regions, labour has been displaced from agriculture – due to a range of drivers such as increasing mechanisation, a decline in the number and prosperity of farms, shifts to less labour-intensive crops – and lacks adequate opportunities in the non-farm sector due to India's 'jobless growth' (Harriss-White and Gooptu 2001; Ramachandran 2011; Shah and Harriss-White 2011; Harriss-White 2014; Yadu 2016). Rural labourers are understood to be those that primarily reproduce themselves through the sale of their labour power. Labour may still own land and even attempt petty production, but they are understood as having to rely on income derived from the sale of their labour power, across a multitude of wage relations (Banaji 2003). Labour may also reproduce themselves across different sites of work both on and off-farm (Carswell and De Neve 2013a), thus they are termed rural as opposed to agrarian.

Pauperisation is again decidedly uneven, both geographically and in terms of different groups along the lines of caste, gender and religion. While 'freed' from older forms of poverty and domination, by migrating, rural labour is often integrated into new economies only on adverse terms, as the forms of work on offer are primarily casual, and perpetuating bouts of circular labour migration

[15] A similar argument is made earlier by Cawthorne (1990) specifically with regards to what she describes as Tiruppur's amoebic capitalism. Historically in Tiruppur, located in my research area, accumulation was mainly sustained by the proliferation of petty producers rather than accumulation and expansion into larger firms.

[16] Harriss-White refers to the 'real subsumption of labour to capital' as the particular means through which proletarianisation takes place (2014, 990).

between villages and towns led by labour brokers and contractors (see also Pitcherit 2009, Carswell and De Neve 2013b, Barnes *et al.* 2015, Mezzadri 2016, Pattenden 2016).

A large literature also highlights the persistence and in many cases renewal and expansion of caste and gender-based forms of oppression and discrimination (alongside class) in explaining processes of exploitation and pauperisation in the Indian labour market (S. Thorat and Newman 2007; A. Thorat 2010; Deshpande 2011; Mazumder and Neetha 2011; Neetha 2013). Breman's study (2007) on labour exploitation in Gujarat offers a longitudinal picture from which to appreciate this. Breman highlights how despite land reform policies aimed at helping the poorest, and more recent welfare and development policies, the tribal Dubla community remain incredibly marginalised. He argues that this is in large part due to the strength of historical caste-based exclusion for the Dubla community, and how this is continually reproduced over generations. In the 19th century, Breman describes the 'halipathra system', whereby young, unmarried Dubla men would attach themselves to higher-caste households as a means of obtaining the means to undertake marriage. This bonded labour arrangement would extend for the duration of the Dubla's life, and that of his family. Breman further suggests that the relationship was *seen* as advantageous by both the upper-caste householder and the Dubla family, because unattached Dublas faced even more adverse conditions in reproducing themselves, thus their masters were seen as patrons of a sort. The reason for this is ultimately the Dublas' historical, structural marginalisation from owning any assets in rural Gujarat, perpetuated over time by their need to depend upon upper caste households to offer patronage, which in turn is forged through the subordination of the Dubla community through caste-based marginalisation by the upper caste communities. This meant that despite the introduction of land reforms in the post-Independence era, and the introduction of rural development programmes, the Dubla community saw and continue to see very little uplift.

Harriss-White and Gooptu (2001) pointed out that whilst by the early 2000s, 93% of India's workers were to be found in the so-called informal or unorganised sector, this did not preclude them from labour regulation (2001, 90), as 'Capitalism is not dissolving this matrix of social institutions but reconfiguring them slowly, unevenly and in a great diversity of ways'. Today, informal labour in India is still set at an impressive 82.2% (ILO 2017). Caste and gender continue to structure how dominant groups are able to organise and control, and thus exploit, labourers from subordinate groups to extract surplus value (Mosse 2018). The complexity of this 'matrix' has meant that labour remains engaged in a struggle over class rather than between classes (Harriss-

White and Gooptu 2001)[17], as class consciousness is fractured by the divisiveness of caste in particular. As such, pauperisation is shown to be driven by articulating forms of power that enable exploitation.

The final point to make is with regards to the salience and applicability of class categories employed through much of this literature. Whilst delineating a clear understanding of class relations forged from theory is a crucial endeavour, it is worth noting that actually-existing class relations in rural India and beyond are complex and messy. Focusing on farm households in India, Djurfeldt and Sircar (2017) highlight the vast deviation between theoretical 'ideal type' capitalist farms – defined by them as farms where all the inputs come from the market – and actually-existing capitalist farms, where 'pluriactivity' means that complex combinations of inputs and activities prevail. The same is true for the authors' definition of 'family labour farms' – where the majority of farm work is undertaken by the family themselves – again the ideal type indicated is far from the reality in the majority of cases (Djurfeldt and Sircar 2017). Notwithstanding critiques of the theorisation of capitalist or labour family farms and the long contestation around rural class relations that would complicate the authors' definitions (see Mohanty 2016), their work highlights a key issue around the way theory is deployed in agrarian studies. Drawing on the work of Max Weber, they highlight the discrepancy between 'ideal type' theorisations and actually-existing empirical realities, and the messiness of the latter. They highlight how this is in large part due to the interpenetration of farm and off-farm economies, thus setting-up ideal types of rural class relations that are confined to rural activities alone requires some refashioning, and certainly this is evident in much of the agrarian change literature today. Ultimately, the authors emphasise the need to remain reflexive in drawing on theoretical concepts in understanding empirical reality in agriculture, which is taken forward in analysis within this thesis.

4.1 Agro-ecology

Within this broader picture of agrarian change in India, there is a relative dearth of theoretically-oriented research which explicitly focuses on how agrarian change is a socio-ecological process. Literature in the fields of political ecology (S. Sinha, Baviskar, and Philip 2006) and Indian environmental history (Gadgil and Guha 1992; Guha 1999, 2013; Agrawal and Sivaramakrishnan 2000; Sivaramakrishnan 2009) has certainly grappled with questions of environment. The latter has also arguably had an impact on critical agrarian studies. As Agrawal and Sivaramakrishnan

[17] This is evidenced by the remarkably low level of unionisation among India's workforce, Harriss-White and Gooptu (2001, 89) suggest that only half of the 7% of labourers employed within the formal economy are unionised).

argue, 'Agrarian environments… have to be comprehended as being part of a biophysical and social environment that always includes the urban and the nonurban, and arable and the nonarable, and other areas that are integrally linked to the world of agriculture and environment and their allied social-economic relations.' Yet with regards to critical agrarian studies literature, Lerche has argued that 'classical political economy has only just begun to take [environmental issues] seriously' (Lerche 2013, 385). As Lerche highlights in The Indian case (2013, 392–93):

> *'The agricultural growth pattern in India based on fossil fuels is, of course, just as environmentally unsustainable here as elsewhere in the world. The Indian environmental crisis includes fast-falling water tables, increasing levels of salinity of soil and increasing soil erosion… However, in the short run it is nevertheless more profitable, for those farmers who can, to continue 'soil mining' through unsustainable technologies based on fossil fuels than it is to develop a sustainable agriculture.'*

Lerche thus suggests that farmers are maintaining an extractive regime with regards to Indian ecology, using Green Revolution technologies to draw on nature's wealth, specifically soil. In expanding upon this, a range of older and more recent[18] literature highlights India's shifting agro-ecology as a key issue in broader processes of social change. Looking back, Epstein's (1973) seminal work highlights the centrality of irrigation in understanding differentiated paths of agrarian change. Her study focused on two villages in southern Karnataka – Wangala and Dalena – that were 'wet' and 'dry' respectively. She writes that 'The turning point in their development came in the 1930s as a result of the introduction of canal irrigation, which created a regional economy in which Wangala and Dalena assumed distinct and complementary roles' (Epstein 1973, 34). Whilst irrigation in Wangala enabled farmers to shift to cash crops, mainly sugar, thus enabling the village to strengthen its agrarian economy, residents of Dalena across a range of class and caste groups were forced to look outside the village for work as dryland farming offered less opportunity for uplift. Epstein highlights that by the 1970s, both villages had become wealthier, whilst the poorest had become poorer, but through relatively different paths, with Dalena increasingly integrated into the non-farm economy and showing some loosening of caste ties, whilst accumulation in Wangala remained largely tied to commercial agriculture within the village, and caste ties remained resilient. Epstein highlights complex and articulating factors to explain these different trajectories, including state politics and caste settlements. However she also foregrounds the role of ecology through the

[18] Beyond this, much literature on agrarian change more broadly cites ecology as an empirical factor or context of specific trajectories of regional transition .

focus on 'productive forces' and how these differ across the two villages in terms of extracting nature's wealth in the form of water, with farmers in Dalena noted as 'wary of investing' given the vagaries of the dryland climate (Epstein 1973, 89). This research thus sheds light on how differing ecologies give rise to differing political economies, which are partly shaped by the requirements of wealth extraction from nature in the form of water.

More recently, Münster's (2016) research has linked agrarian and environmental change in the Wayyanad region of Kerala to the Marxian thesis of a metabolic rift (Marx 1976; Foster 2000). He argues that farmers choosing low-budget, organic alternatives to intensive, capitalist forms of agricultural production which previously flourished represent 'the first steps towards repairing… or reworking… the metabolic rift between humans and nonhuman nature brought about by capitalist agriculture' (Münster 2016, 223). Taylor (2013, 2015) also highlights the centrality of environmental change to understanding agrarian distress in Andhra Pradesh. He (2013, 697) explores shifts in farming in Andhra Pradesh, part of India's semi-arid Deccan plateau, through a political ecology lens, highlighting how the onset of liberalisation forced farmers to move from relying on increasingly erratic rainfall to 'rampant' groundwater depletion. The use of bore wells is funded through credit, as well as chemical inputs designed to increase yields, and this phenomenon is particularly prevalent among small and marginal farmers that have faced a squeeze on social reproduction through agrarian production (M. Taylor 2015). Yet 'Competitive drilling and aquifer depletion' driven by increased debt and thus increased risk for small farmers leads to well failure, and concurrently an inability to repay loans. Taylor links this to the phenomenon of farmers suicides which has been prevalent in recent decades across India, and is a particular issue across the Deccan plateau. He therefore argues (2015, 144–45) that suicides shed light on 'a new dynamic of insecurity that has arisen in the context of severe cost pressures stemming from liberalised agriculture, escalating levels of household debt and the transformation of the socio-ecological infrastructures through which farmers seek access to irrigation'.

These studies directly or indirectly highlight how environmental change is also the story of agrarian change across India. Yet overall, literature that systematically foregrounds ecology within the critical agrarian studies framing on India remains rather limited. In linking the theoretical framing set out in the previous section with literature on India, I would argue that studying agrarian change through a more decidedly socio-ecological lens would enable us to better understand how processes of social transformation are articulated with environmental change. Specifically, how is agrarian accumulation being shaped by the difficulties of appropriating nature, as described by Taylor? What are the specific difficulties of appropriating nature in different regions (Burkett 1996), and how have state policies assisted/ obstructed agrarian accumulation? What sorts of

technologies are being used to appropriate nature's 'gifts'? How is nature in turn being reshaped (Moore 2015)? What are the impacts upon rural labour of the shifting dynamics of appropriating nature, and how are regimes of labour control and exploitation being shaped as a result (Baglioni and Campling 2017)? And finally at a broader level, how can we understand the patterns of rural accumulation, stagnation and pauperisation through a lens which also accounts for the appropriation of the environment and how this is changing (Foster 2000)?

This thesis addresses these questions. In doing so, I draw on the argument that agrarian change in India is now delinked from industrial circuits of growth, as put forward by Lerche (2013), and an understanding of agrarian stagnation or pauperisation for some – rural labour and petty commodity producers to an extent – and not others – landlords, merchants and capitalist farmers (Harriss-White and Gooptu 2001; Harriss-White 2007; Ramachandran 2011; Lerche 2015). I further draw on Harriss-White's focus (2007) on markets as 'systems of circulation' as a means of exploring how production and circulation are articulated vis-à-vis tobacco markets, and how power upstream – particularly merchants – shapes production. In seeking to examine this process more closely in Kongunadu, I now examine the specific process of agrarian change underway, and then ask how ecology is implicated. The next section thus looks more closely to Tamil Nadu and Kongunadu.

5. Agrarian change in Tamil Nadu and Kongunadu[19] and the relevance of agro-ecology

Tamil Nadu comprises decidedly uneven geographies of agrarian and industrial development. In keeping with the national scenario the state's agrarian sector is in decline, both in terms of labour absorption and in terms of its size vis-à-vis the state economy (Department of Evaluation and Applied Research 2014; Dept of Economics and Statistics 2015), thus it is in the midst of an uneven period of agrarian change, and within this, deagrarianisation[20]. Alongside this, the industrial and services sectors are growing, assisted by continued investments and incentives from the state government for IT (and garments) in particular over the last two decades (Vijayabaskar 2010). Yet this process of change is playing out highly unevenly in terms of its impact upon rural development in different parts of the state. Harriss-White's call (2017) for the need to look beyond state boundaries to understand the spatial features of accumulation speaks loudly to the Tamil Nadu

[19] The specific trajectory of agrarian transition and change in Kongunadu over the past two centuries will be explored more fully in Chapters 4 and 5. I limit remarks here to situating the region vis-à-vis the state more broadly.

[20] This argument is made more substantively in Chapter 5.

case. In fact, there are clear regional variations within Tamil Nadu with regards to how agrarian capitalism has emerged and flourished, and these can be understood along different regional and spatial (sub)scales and with regards to different ecologies, the constitution of distinctively differentiated rural class structures, labour relations, forms of exploitation and labour control, and technological advancements. Crucially, in taking forward the theoretical framing set out in this chapter, historical settlement, industrial change, class and caste politics in exploitation, and the role of the state are shown to be crucial in understanding change in Tamil Nadu. Ecology is also explored in the Tamil Nadu context in the following sub-section. As regional analysis will show, within Tamil Nadu's complex picture, Kongunadu represents a region of rapid and proliferating industrialisation, which has been structurally inclusive in enabling both small and large firms to flourish, whilst accumulation has also historically been built on the caste, class and gender-based exploitation of labour. Within this, accumulation is also shown to be built on an accelerating regime of appropriating nature.

Looking first to historical settlements, Tamil Nadu's historical geography of agrarian settlements is uneven, and continues to be felt today. As Baker (1984a) highlights, the broad contours of the state's geography can be understood as the 'valleys' to the south-east, the 'plains' across the centre, and the mountains to the west, with 'Kongunadu' sitting at the foothills of the mountains and merging with the plains region as a distinct fourth area. These regions are ecologically varied – the valleys surround parts of the main rivers in the state – the Kaveri, Vaigai and Tambrapani – and therefore represent the regions with historically flourishing agriculture, whilst the plains are arid and semi-arid, and Kongunadu is arid, with the least rainfall in the state. Baker highlights the role of such varied ecologies in shaping the settlements of these regions – valley regions have long been the seat of high Tamil culture following the success of rice production in the fertile river valleys, home to the most dominant caste Hindus – Brahmins and noble Vellalas, whilst the plains were the site of considerable warfare from the 18th century onwards, with invading warrior castes from Andhra Pradesh and Karnataka settling in different parts of this region. Kongunadu was settled both by a Vellala caste community (the Gounders) and also by invading warrior castes such as the Kamma Naidus.

Whilst there have been significant shifts to these settlements over the past two centuries following British colonialism and the post-colonial state[21], the legacy of these pre-British settlements remains relevant in studying Tamil Nadu. An instructive example of the relevance of histories of settlements for the agrarian trajectories of the state is represented by the village of Iruvelpattu,

[21] The specific nature of change in Kongunadu during these periods will the subject of Chapters 4 and 5.

located in Villupuram district (formerly South Arcot) in eastern Tamil Nadu, which has been longitudinally surveyed by social scientists at irregular intervals starting from 1916 until 2008, offering a unique glimpse of village change over almost a century (J. Harriss, Jeyaranjan, and Nagaraj 2010). The village is located in the plains region of Tamil Nadu, which was settled relatively late and largely dominated by invading warrior castes from Andhra Pradesh and Karnataka, and is characterised by rain-fed agriculture, with sporadic use of wells and rivers/canals to enable irrigated agriculture. Land concentration in the region is highly skewed, from the first survey of Iruvelpattu in 1916, a single upper-caste Reddiyar[22] landlord wielded significant power over resources in terms of land ownership, owning 400 acres or roughly two-thirds of all village land. Alongside this, there existed a much larger community of marginal farmers, comprised primarily of caste Hindus who either leased small parcels of land from the Reddiyar landlord or owned small parcels of land themselves, and of landless labourers, comprised primarily of Dalits. By 2008, almost a century after the first survey of the village, as Harriss et al. (2010) note, what remains remarkable is the extent to which there remains continuity in the village's socio-economic character, as well as notable change. In terms of change, the Reddiyar landlord's power and control over assets has waned considerably, due in large part to agitations from the Dalit community, and household social reproduction among both Dalit and caste Hindu households has become decidedly more geographically expansive, as both groups are shown to rely increasingly on migrating for labour in the non-agrarian economy for social reproduction. Yet despite these changes, the village remains spatially demarcated by caste, and land ownership remains skewed, with only one Dalit household owning over 4 acres of land, and the Reddiyar landlord continuing to own just under 30% of all village land (J. Harriss, Jeyaranjan, and Nagaraj 2010, 51). The example of Iruvelpattu thus highlights the fact that despite almost a century of change, historical patterns of land settlement and power remain resilient within the village, and therefore warrant attention in seeking to understand trajectories of social change.

Moving to the present day, the growth of both the industrial and services sectors in Tamil Nadu have had a transformative, albeit uneven impact on the region's political economy. This has been felt most significantly in and around Kongunadu. As early as the 1920s, cotton, garment, and later knitwear, industries began to flourish in Coimbatore and Tiruppur, initially attracting investments from capitalist farmers in the Kamma Naidu community, and later from the lower end of the differentiating peasantry in the form of collective accumulation by small Gounder farmers (Chari

[22] This is a warrior-caste from Andhra Pradesh, likely to have been given land in the region following a successful military campaign (Baker 1984a)

2004; Mahadevan and Vijayabaskar 2014). Industry thus offered a means of accumulating for small farmers, where the vagaries of dryland agriculture made it very difficult to do so (Mahadevan and Vijayabaskar 2014).

The extent of industrialisation in Kongunadu has been profound. For instance, in Tiruppur, the value of direct exports rose from under $50 million in 1990 to $2.5 billion in 2010 (Carswell and De Neve 2013a, 431). Carswell and De Neve (2013a) also note the emergence of rural industry, most notably in the form of a power loom industry. Thus the 'Tiruppur effect' (Carswell and De Neve 2013a) not only implies processes of rampant urbanisation of small-town India, it also increasingly entails a process whereby urban manufacturing spills over into rural spaces, leading to diffused rural industrialisation and providing rural labour with increased opportunities for non-farm work. Such work is often considered to be less physically demanding and cleaner than agricultural work, and also to generally comprise higher wages, thus it represents a secular improvement in labour conditions in many ways, and complicates notions of deagrarianisation as necessarily pauperising. Djurfeldt et al (2008) document the impacts of industrialisation in Kongunadu on six villages located in the southern peripheries of the region, in Karur and Tiruchirapalli districts, and highlight the net positive effect that it has had. The villages are undergoing an uneven process of livelihood deagrarianisation, with agrarian income contributing less to household income, and agriculture absorbing less of the local workforce. Villages have thus become increasingly non-agrarian, as total household income has risen far more than labour income or farm income, evidencing a structural transformation of the rural economy. Crucially, land ownership has also shifted in three of the six villages from upper-caste to lower-caste hands, signalling a loosening of caste marginalisation from the village economy. This change signals positive shift away from agriculture according to the authors. Farming parents are no longer splitting landholdings among children, breaking the phenomenon of increasingly declining landholdings, instead one child is left with the full familial holding whilst the rest are pushed into the non-farm economy. The authors characterise this as potentially 'an exit from an unrewarding existence as a farmer to a more promising future in the non-farm sector' (Djurfeldt et al. 2008, 54). Agriculture itself is both wet and dry across the villages, and labourers in the wet area have diversified, whilst labour numbers in the dry area have decreased, to some extent due to the use of technologies. Agrarian labour and poor peasants have exited in greater numbers than other classes from agriculture, signalling the potential for mobility within this process of change. The material impacts of these shifts upon village are unsurprisingly positive, with rough or Katchi houses declining from 60% of the village houses just 25 years ago to under 30% today. Thus Djurfeldt et al highlight the fact that a structural transformation is taking place, which they argue

will 'more or less halt the growth of the agrarian population', albeit with relatively positive impacts for rural households (2008, 59).Yet looking specifically to shifts in labour, the spoils of industrialisation have to some extent led to a secular improvement in labour conditions as Djurfeldt et al (2008) highlight, but not for everyone.

Evidence from Kongunadu points to complex spatial dynamics vis-à-vis labour relations and industry. Carswell and De Neve (2013a) shed light on the contrasting labour relations between two villages located within the environs of Tiruppur, highlighting how one village – Allapuram – has seen a high exodus of Dalit labour to urban garment work which is salaried and generally comprises good wages due to the existence of a strong bus connection between this village and Tiruppur. Conversely, in the village of Mannapalayam, where bus connections are poor and the power loom industry has come to the village, there has been a proliferation of neo-bonded labour relations enforced by Gounder loom owners onto their Dalit labourers. Here, Gounders use cash advances to retain Dalit labourers within this industry, a form of spatial labour control aimed at preventing an exodus of rural labour towards the urban industry, or to other loom units. Notably, in this case, neo-bonded labour comes in response to the tightening of rural labour markets, and aims at limiting alternative options for Dalit labour. Thus labour relations and even caste-based forms of exploitation in Tamil Nadu are not experiencing an even, secular improvement through the process of industrialisation.

Outside of Kongunadu, Donegan's research (2018) focuses on social change after the entrance of state industry in Cuddalore on the east coast of Tamil Nadu. He highlights how rather than breaking down the historically prevalent power structures in the village, in fact such structures 'adapt and persist' through the new medium of industrial labour relations (Donegan 2018, 82). Specifically, the formerly dominant landlord Nadar community have become labour contractors, thus continuing to control the terms of work for both Vanniyars, who were minor landowners previously and have gained semi-skilled jobs in industry, and Dalits, who were landless previously and are now forced to take low-paid, unskilled jobs. Donegan argues that 'the factory has been adroit at making use of existing caste structures' thus highlighting how by coming to the village, industry is unable or unwilling to break caste ties. The proliferation of industry, urban and rural, and of different types of industry demanding different forms of labour control, is thus show to have uneven effects in terms of transforming labour relations in Tamil Nadu, with configurations of space playing a key role in shaping specific trajectories.

Focusing more closely on exploitation, waxing and waning configurations of caste, class and gender are shown to enable exploitation and therefore drive agrarian change. Heyer's longitudinal

research (2000, 2012, 2014, 2016a, 2016b) documenting rural change in villages in the heart of Kongunadu highlights clear shifts in class and caste relations since the early 1980s, and points to a secular loosening of caste-based exploitation, albeit with Dalit social mobility being far slower than among caste Hindus. In the early 1980s, the villages that she surveyed were primarily agricultural, and the most dominant caste community was the Gounder community comprising 36% of all households, with 51% of the Gounder households in surveyed villages being small farmers, and 44% being labouring households[23]. The other main communities undertaking small-scale or thottam farming were Chettiars, a mercantile caste community, and Naidus, a commercial caste that migrated from Andhra Pradesh in previous centuries. The second largest community were Dalits, comprising 30% of all households (Heyer 2016a). This community was almost all undertaking agricultural labour and was primarily landless, collectively owning 1% of all village lands (Heyer 2014). In this period, over 80% of those living in study villages worked in agriculture, and thus the landed agrarian elite were largely dominant. By 2008/09 however, Heyer (2014) reports that state welfare combined with tightening rural labour markets due to increased opportunities in the garment industries has led to a betterment among Dalit workers, albeit at a far slower rate than among Gounder and other caste Hindu households in the study villages. Thus caste remained intact, albeit loosening, during the process of change.

Conversely, Guérin and others highlight how caste-based oppression is deepening, focusing on different forms of bonded labour in both agrarian and industrial sectors in Tamil Nadu (Roesch, Venkatasubramanian, and Guérin 2009; Guérin 2013). 'Bonded labour' is understood here as one of 'a multiplicity of forms of exploitation based on wage-labour' (Banaji 2003, 82) [24]. Looking at the rice sector in Tamil Nadu, Roesch et al. (2009) explain the persistence and even rise of bonded labour through the need for labour control given the particular care, attention, duration and skill required to undertake rice drying, and the particular social configuration which allows capital to do so. Labourers in one of the field sites that they study in Tiruvallur District – largely come from the Irular community, and mill owners from 'Forward caste' communities such as Chettiars, Mudaliars, Naidus and Nadars. The Irulars are a particularly marginalised and ostracised community in Tamil Nadu, originating in forested areas in the west of the state, and forced to take up work on the plains due to mass deforestation in the 19th and 20th centuries. They are stigmatised as being simple-minded and ignorant, thus upper-caste mill owners are able to claim a paternalistic

[23] This is understood as those that undertook small-scale agriculture and 'made progress through long periods of hard work in low skilled jobs' (Heyer 2016a, 201), thus primarily earning as labourers.

[24] See Rao (1999) on the thesis that unfree labour is incompatible with capitalism, see Lerche (2007) for full debate. This is explored in more detail in Chapter 4.

role in taking them on as bonded labour, using caste relations as a means of enforcing and legitimising bonded labour relations. Roesch et al (2009) also point out that rather than waning, such forms of bonded labour control are likely to increase within the state's rice sector, as the uncertainty for 'nerkalams' – the rice drying yards which deploy bonded labour – has been deepened by the liberalisation of the rice sector in 1999, and the consequent proliferation of firms, threatening vertical and horizontal integration, competition from increased modernisation, and due to shifting consumer preferences for higher quality rice. This chimes with Harriss-White's work (1996, 2007) on how changes downstream of production within commodity markets shape the way surplus value is extracted through the market, and how the 'social institution' of caste remains central to this process. Nerkalams thus deploy bonded labour relations as a means of transferring some of the uncertainties, or risk, of the market on to individual labourers, as they provide an immobile labour force when work picks up, and a means of extracting increased surplus through deepening debt when there is less work.

In seeking to conceptualise the articulating forms of power vis-à-vis exploitation, Shah and Lerche et al's conception of 'conjugated oppression' (2017; c.f. Bourgois 1988) proves useful. They take inspiration from the work of Philippe Bourgois, who deployed the term to capture how 'an ideological dynamic of ethnic discrimination… interacts explosively with an economic dynamic of class exploitation to produce an overwhelming experience of oppression that is more than the sum of its parts' vis-à-vis workers on plantations in Costa Rica and Panama (Bourgois 1988, 72; c.f. Shah et al. 2017, 24). Conjugated oppression thus draws attention to how change in Tamil Nadu is characterised by shifts in the articulation of different forms of oppression, enabling exploitation to both wax and wane among different groups. Ultimately, caste, class and gender are shown to combine in different ways, and to be varied across the uneven geography of the region's agrarian change.

Another overarching key factor shaping patterns of uneven agrarian development in Tamil Nadu is the state. Pattenden's work (2016a) on state—labour relations in northern Karnataka highlights the complex interrelation between state and society vis-à-vis agrarian relations. The post-colonial state is shown to have played a role in driving agrarian accumulation in India, most notably through the Green Revolution and its concomitant provision of state support to millions of farmers across the country, yet this relationship conversely meant that certain rural classes were able to wield increased power over and through the state. As Pattenden notes (2016a, 55), 'The Green Revolution had bound farmers' livelihoods up with the state as never before, and increased profits carries demands for better terms of trade and greater political representation until accumulation strategies began to diversify, and the basis for collective action declined', the notable example of

this being the farmers movements of the late 1980s/early 1990s (see Brass 1995). The state therefore both shapes and is itself remoulded by the interests of dominant agrarian groups. Crucially, dominant agrarian classes are not necessarily allied in terms of interests with non-agrarian capitalist classes, thus the state's role can be fractured, by '…its commitment both to support capitalist accumulation and to maintain social stability (in part by ensuring that labour can reproduce itself), as well as from government's desire for re-election. These objectives can bring the state into conflict with the capitalist class as a whole, or particular parts of it' (Pattenden 2016a, 53). Therefore, in discerning how the state comes to represent the interests of particular dominant classes, Pattenden (2016a, 55) highlights the way representatives of dominant rural classes become 'gatekeepers' to the state, thus 'manning the state—society interface'. Meanwhile, classes of labour find it far more difficult to 'extract resources and policy concessions', as they lack representation within the state at different levels – local and national (Pattenden 2016a, 54). The exception to this is when particular parties are looking to increase their vote share among the poor, in such cases state governments are shown to enact pro-labour policies in the form of social welfare to some extent, though this picture differs notably from state-to-state (Heyer 2000; Pattenden 2016a).

Pattenden's work is useful for thinking through the role of the Tamil Nadu State government vis-à-vis agrarian development. From 1967 onwards, Tamil Nadu was ruled by successive governments embedded in regional Dravidian politics, starting with the Dravida Munnetra Kazhagam (DMK) in 1967 and then alternating between the DMK and the All-India Anna Dravida Munnetra Kazhagam (AIADMK) after the original party split in 1977. Both parties are rooted in a populist, pro-poor and anti-Brahminnical political tradition. The DMK was founded by the political activist E. V. Ramasamy Naicker, or 'Periyar', meaning 'great one', as an antidote to what was seen as the overtly Brahminnical and Sanskritised rule of the Indian National Congress and linked regional groups in the post-independence state government (Baker 1984b; Gorringe 2012a; Ananth 2014). Yet as Gorringe has argued, both the DMK and the AIADMK – formed of a faction of the original party that split in 1972 – are rooted in a caste base that largely comprises the so-called 'Other Backward Classes' (Gorringe 2012a; Ananth 2014). This grouping, as defined by the Indian constitution[25] in 1950, does not comprise Dalit or Adivasi communities, those that constitute the poorest factions of Indian society and the vast majority of landless labour in Tamil Nadu (Census of India 2011; K. Srinivasan and Kumar 1999). Instead, the DMK and AIADMK base is largely made up of what Gorringe terms the 'dominant' OBC groups (Gorringe 2012a). In

[25] Together, the 'Scheduled Class' (SC) category, covering Dalit caste groups, 'Scheduled Tribe' (ST) category, covering tribal groups, and the ('Other Backward Classes' (OBC) categories comprise the 'Backward classes' of India according to the Indian constitution (Ananth 2014; K. Srinivasan and Kumar 1999).

Tamil Nadu, the OBC category has been split into two categories – 'Most Backward Classes' (MBC) and 'Backward Classes' (BC), with MBC receiving greater protections than BC (Ananth 2014).

As Gorringe writes, both AIADMK and DMK became largely populist in seeking support from OBC groups from the 1970s, particularly among large agrarian caste groups such as the Gounders, and certainly as Pattenden has suggested (2016a), this was driven to some extent by the permeation of the state by such agrarian classes. The state under both parties from the 1960s onwards was highly interventionist in 'bolstering up small and middle farmers, and in protecting the poor' (Heyer 2000, 6). Heyer writes in relation to agriculture (2000, 6),

> *'The farmers' lobby led by the TNAA (Tamil Nadu Agriculturalists' Association) was powerful in the late 1960s and early 1970s. It lobbied very effectively for low taxes, low water charges in canal-irrigated areas, low electricity prices, low agricultural input prices, loan write-offs, and high paddy procurement prices.'*

The state was thus committed to a form of 'mass politics' which aligned itself with agrarian and mercantile castes rather than landed classes among upper castes or Dalit wage workers (Gorringe 2012a).

In understanding how this historical picture has shifted in the last decade or so, there has been a discernible increase in specific caste communities making claims upon the state (Pattenden 2016a), in many cases through the formalisation of such claims within a specific political party. Gorringe (2012b) argues that this is due to the historically 'cosy relationship between dominant BCs [Backward Class groups] and the two Dravidian parties', thus initially, the main parties to emerge represented groups left out of mainstream Dravidian politics. Most prominent among these were Dalit parties and the Vanniyar party, the 'Paatali Makkal Katchi' (The Toiler's Party), with the former having met with significant opposition from both caste Hindu communities and the state in demanding greater recognition for the oppression faced by Dalit communities (Gorringe 2012b). More recently, groups that have enjoyed significant state support through the latter half of the 20th century are now also mobilising on a caste basis, arguably to wrench back state support. In Kongunadu, the rise of the Kongu Nadu Munnetra Kazhagam (KNMK) highlights this phenomenon. As Vijayabaskar and Wyatt (2013) suggest, despite its protestations to the contrary, the party represents the concerns of a specific type of trajectory within the Gounder community – that of small-scale farming or industry that is flourishing, seen to be driven by hard work, and shown to be driven by caste-based accumulation and strong systems of labour control (Chari

2004). As such, the KNMK's policies are concerned with preserving this form of capitalism, including attacks on increasingly mobilised Dalits through lobbying against their reporting of caste-based crimes (in order to preserve Gounder labour control), and a push for greater representation of Gounders at different levels of local and state government (Vijayabaskar and Wyatt 2013). Ultimately, Vijayabaskar and Wyatt (2013, 110) suggest that 'The politics of the KNMK is very much about status and caste pride which has at its base the Gounders self-image as a proprietary caste.'

Tamil Nadu state is thus shown to be the site of contestation among fragmented ruling classes, and a continually-evolving arena of claims-making by different groups. Crucially, the success of different gate-keepers results in different levels of state support for agriculture, thus highlighting the need to look inside the state (Mooij 1999) in order to understand its impacts upon agrarian change more broadly.

5.1 Agro-ecology in Tamil Nadu and Kongunadu

Looking finally to agro-ecology, a small literature examines the interrelatedness of the processes of agrarian and environmental change in Tamil Nadu. This literature highlights how class relations, patterns of agrarian accumulation, the success of state-sponsored technologies and, more recently, the uneven process of livelihood reorientation as part of deagrarianisation underway across the state, have all been affected to some extent by environmental change which has in turn been shaped by such processes. As such, capital is shown to have deployed irrigation technologies, chemical inputs and high-yielding seed varieties, propelled by state support, to extract increased wealth from nature, and to have utilised labour control as a means of overcoming the vagaries of the region's ecology in doing so[26]. This process is also shown to be breaking down in the current era, both in terms of labour and nature, highlighting the need for the focus within this thesis in seeking to explore these processes and how they are articulated more closely.

Looking back to the first half of the 20th century, agrarian development is shown to have been quite varied across the state. The valleys region to the east continued to be the most fertile with the cultivation of paddy in irrigated tracts, and an increase in double cropping, albeit with some evidence of the beginnings of yield decline due to spent soils (Baker 1984a, 176–7).

Kongunadu meanwhile saw a rapid increase of commercial agrarian production as Cambodia cotton came to the region, with markets burgeoning in Coimbatore for garments as a result (Chari

[26] This narrative is outlined briefly here, to be expanded upon through analysis in Chapters 4 and 5 which draws on primary and secondary literature.

2004; Mahadevan and Vijayabaskar 2014). The outcome of this was a more intense cropping regime for farmers that deployed irrigation technologies in the form of cattle-power to lift water from wells, and later pump sets, to increase the production of cash crops as well as subsistence crops (Cederlöf 1997). As such, the appropriation of nature's wealth is shown to be central to strategies of accumulation in this period, albeit alongside the existence of complex and articulating forms of caste, class, and gender based labour control (Cederlöf 1997; Chari 2004).

Yet looking within broader regions there are significant differences even between two villages. In the same vein as Epestein (1973), Athreya et al (1990)'s 1979 study on villages in Tiruchirapalli district, which is largely in the plains and dry but also comprises a section of Kaveri river valley, highlights this well. By contrasting a 'dry' village with a 'wet' one, they find that class and caste relations, as well as patterns of accumulation, vary considerably according to ecology. In the wet village, the richer lands give rise to a clearer class of capitalist landlords and farmers as upper-caste Brahmin landlords are more prevalent, and there exists a significant proportion of the population – 30% – that are landless labourers. This is linked directly to the form of accumulation, as procuring water is not a concern – access to canal irrigation for 10-11 months per annum allows producers to cultivate two paddy crops and a third crop as well per year, enabling high levels of sustained accumulation and expansion for landlords and farmers. In the dry village conversely, class relations are less skewed and the 'middle peasantry' dominates, with farmers centrally concerned with increasing their access to water through the use of irrigation technologies, primarily wells, in order to enable cultivation in the thin, red soils of the area. Whilst the majority of land in the dry area remains rain fed, it is the irrigated tract (under wells and tanks) that enables the greatest productivity and thus contributes more to overall production. The vagaries of appropriating nature's wealth in this village do not engender capitalist relations to the same extent as in the wet village. Therefore, ecological variation at the village-level, forged in part by the state in terms of the canals in the wet village, is shown to greatly mediate the capital requirements of appropriating nature's wealth in each region (Athreya, Djurfeldt, and Lindberg 1990).

Moving back to state-level analysis, the differentiation across the villages in the study by Athreya et al is reflected in the arguments put forward by Farmer (1979) around the geographically varied success of Green Revolution technologies across Tamil Nadu. In explaining this, he argued that the 'improvement in productivity [of rice] is still limited in many areas because technology has not yet sufficiently overcome problems set by the natural environment' (Farmer 1979, 316). Put simply, the same package of inputs and high-yielding seed varieties offers a more successful means of controlling nature in some regions over others, depending regional environment (Marx 1976; Moore 2015; Baglioni and Campling 2017). In taking the outcomes of this varied success to the

next stage, links emerge between patterns of ecologically-shaped accumulation and emergent farmers' movements that were able to obtain state patronage (Pattenden 2016a). During the 1980s and 1990s, it is irrigated farmers that are shown to have led mass farmers movements in Tamil Nadu and elsewhere, pushing for increased state support for agricultural growth (Nadkarni 1987; Brass 1995). thus ecology, or rather the particular difficulties of appropriating nature's wealth in a given tract, is shown to affect both class relations and class struggle, as well as patterns of accumulation.

Jumping to the current era however, as highlighted earlier, there is an uneven process of livelihood-related deagrarianisation underway in Tamil Nadu, in keeping with other parts of India, and a growing body of research is looking to the ways in which ecology is implicated in this process. Heyer's work on Gounder farmers in the western parts of the state has highlighted the role of both the falling water table[27] and rising wages for labour as issues contributing to agrarian change in the region, specifically to the increasing move away from agriculture among small farming households (Heyer 2016b). In the eastern, coastal districts of the state, Vijaybaskar has also highlighted depleting groundwater as one of the reasons for farmers leaving agriculture behind and concurrently increasing levels of land sales in the region (2010). A host of literature has highlighted the complex processes of water depletion in the state, ranging from groundwater extraction to water disputes with neighbouring states (see for example Bosu 1995; Palanisami, Vidhyavathi, and Ranganathan 2008; V. Srinivasan et al. 2014). Furthermore, whilst Heyer has pointed to the improvements that many small farmers have experienced as a result of moving away from agriculture, the state has also seen significant agitations in response to sustained droughts, with farmers taking protests to the national capital to garner attention for their sustained losses (Kumar 2017; Yamunan 2017). Crucially, much of this literature points to both social factors such as shifts in rural labour markets, state politics, and the proliferation of non-farm capital, and to ecological factors (see Vijayabaskar 2010; Carswell 2013; Carswell and De Neve 2013c, 2013a; Vijayabaskar and Wyatt 2013; Heyer 2014, 2016b; Vijayabaskar and Menon 2017). Yet there remains little by way of articulation across the social and ecological, to understand how they mediate one another, either at a micro-level (Baglioni and Campling 2017) or more broadly (Foster 2000). To what extent is the agrarian decline described in accounts such as Djurfeldt et al (2008) or Harriss et al (2010) affected by the shifting dynamics of appropriating Tamil Nadu's soils? How is this articulated with the shifts in rural labour control and exploitation? To what extent is the state driving changes in

[27] There is a broader political economy literature on water in India. See Mollinga (2010) for a full review.

the appropriation of nature by farmers? And what are the impacts upon Tamil Nadu's ecology of its transformation? This thesis looks to begin answering such questions.

The literature on Tamil Nadu ultimately highlights a process of long-term agrarian change, driven in large part by industrialisation that has become more rapid in recent decades, attracting labourers, struggling dryland farmers, as well as large capital from rural areas. This process of change is shown to be geographically uneven across the state, with Kongunadu representing the locus of change. Even within this region however, different caste communities have by no means experienced a secular improvement, rather the roll-out of industrialisation is shown to both weaken and deepen forms of oppression as power relations articulate differently in different areas. The state's role in historically supporting dominant agrarian caste groups as well as providing social welfare to the poorest is shown to have facilitated agrarian accumulation as well as the shift to the non-farm economy for rural labour. Within this, the role of environmental change in the state is shown to be a key part of the story of agrarian change, as different forms of agrarian capitalism, class formation, agitation and deagrarianisation are all shown to have been affected by shifting access to water in particular. Yet whilst literature highlights industrialisation, labour market contractions, state policy and environment as factors, there remains a dearth of scholarship which articulates them.

6. Conclusion: conceptualising tobacco production and agrarian change in Kongunadu as socio-ecological

This chapter has set out the theoretical foundations of this thesis through a regional focus on India and Tamil Nadu. In doing so, the chapter has ultimately developed a theoretical lens through which subsequent analysis will proceed.

Beginning with the focus on agrarian change and the environment, the chapter highlights divergent views of rural social change which conceptualise either a persistent peasantry or the emergence of classes of labour. The chapter adopts the latter view (Bernstein 2010a), and this is developed further through a focus on the work of Lerche (2013) to highlight how agrarian and industrial transitions across India are delinked from one another, such that the main question concerning agriculture today rests on the ways in which fragmented classes of labour reproduce themselves across spatial and sectoral divides. The focus on India also highlights the specific class relations that characterise the Indian countryside – namely merchants, landlords and farmers as 'winners' of the current process of agrarian change, and classes of rural labour as the 'losers'. Literature from India further shows the articulating forms of oppression that contribute to accumulation for some

and pauperisation for others, and the productive role of merchants in rural accumulation, highlighted in Harriss-White's 'systems' approach (1996, 2007). A focus on Tamil Nadu specifically foregrounds how agrarian change is contingent upon historical settlements, regional ecologies, and state support, and comprises complex and non-linear trajectories of social change, in terms of how industrialisation deepens or alleviates caste-based discrimination across different spaces.

The chapter also crucially highlights a lacuna within critical agrarian studies with regards to foregrounding the environment in explanations of agrarian change. Focusing first on a debate between those advocating a food sovereignty approach and critical agrarian studies, whilst the latter offers a coherent critique of attempts to advocate for peasant farming given the difficulties and frugality of such farming, it is also suggested that critical agrarian studies has arguably not been attendant enough to the ecological impacts of 'modern farming'. As such, this chapter draws on the work of green Marxist thinkers to highlight how the agrarian questions framework can better locate and theorise agrarian change as a socio-ecological process. The focus is on where to locate ecology within agricultural commodity production (Burkett 1999), how capital seeks to control and compel nature to increase the appropriation of its wealth in agriculture (Burkett 1999; Moore 2015; Baglioni and Campling 2017), understanding the articulation between appropriating nature and exploiting labour (Baglioni and Campling 2017), exploring how nature in turn is reshaped (Moore 2015), and finally, how this form of analysis enables us to make sense of broader spatial shifts in capitalism (Foster 2000).

These strands of analysis are disaggregated to two levels: the commodity, and regional agrarian change, with the former being the focus of this thesis, and the latter being an area where this thesis looks to set out parameters for future research. In linking this back to the core framing, and developing insights through literature on India and *Kongunadu,* class relations, patterns of accumulation, divisions of labour and the pace and character of structural transformation are all shown to be affected by the particular requirements of appropriating nature in a given tract (Epstein 1973; Farmer 1979; Baker 1984a; Athreya, Djurfeldt, and Lindberg 1990). As such, the socio-ecological framing put forward in this chapter highlights how agricultural production is shaped both by the appropriation of nature and the exploitation of labour, that the former and latter are articulated, and that the dynamics of both are also contingent upon and constitutive of state politics and class, caste and gender relations.

A brief note on language is also warranted at this point in the thesis. The position taken in this chapter makes clear that analysis of environmental factors and their impacts upon agrarian capitalism do not afford any agency or intent to such factors, therefore avoiding any suggestion of

environmental determinism. In practice however, it is linguistically difficult to ensure that verbs used to highlight the ways in which ecological factors affect particular modes of natural resource appropriation, and through this, forms of capitalist production, are necessarily devoid of the suggestion of agency/intent. As such, whilst every care will be taken to ensure that the language remains representative of the broader ontological approach set out here, it is also acknowledged that there may be areas of ambiguity, where the reader can assume that the argument is not suggesting an animate nature.

This chapter has ultimately developed a tentative framework through which to study tobacco production as a socio-ecological process in Tamil Nadu, and to use this to begin to make broader suggestions vis-à-vis regional socio-ecological change. The next chapter takes forward the framing set out here to highlight how it is operationalised in order to study tobacco in Kongunadu.

Chapter 3
Methodology and fieldwork

1. Introduction

This chapter provides an overview of how the theoretical enquiry outlined in the previous chapter was operationalised in the field, and how this operationalisation was further adapted through the very specific experiences of fieldwork. As Devereux and Hoddinot write, 'Fieldwork is not a science. If it were, a standard manual would have been written decades ago.' (1993, xi). My own experiences certainly validated such a thesis, therefore this chapter presents a clear picture of limits and failures as well as successes, in depicting how research took place, and how the theoretical framework was treated inductively to enable analysis to emerge. In particular, I highlight here how initial insights emerged from early fieldwork findings, reshaping my overall enquiry and focus in ways in which I could not possibly foresee. I then go on to outline the research case, regional context, and research methods, before outlining my time in the field, focussing on my own positionality, alliances and power in the field, and the data that emerged as a result of this. Finally, I look at research ethics during my fieldwork.

The combination of a shift in focus towards ecology, the great complexity of the region under scrutiny, the paucity of earlier studies on tobacco in the region I researched, and the complex power relations at work in the field, meant that I have to combine and link multiple fieldwork methods. I deployed formal interviews and observation across a spatially dispersed area, to gain a sense of regional differentiation of production and exchange of tobacco. I collected grey material and secondary data from a considerable number of sources, such as colonial records and Tamil Nadu state government reports. However, I also simply learnt a number of key insights on tobacco, its production and its relation to ecology and livelihoods through endless informal chats and encounters with men and women across Kongunadu. This chapter thus sets out my experiences in the field, and highlights the ways in which this shaped my resulting findings.

2. Theory to research design

In the previous chapter, I argued for a theoretical framework looking at agrarian change through a socio-ecological lens. However, what does it mean in practice? How can one operationalise this framework? I begin this process by first reiterating the central question of the thesis, and the sub-questions which arose through the theoretical frame:

How is ecology implicated in the production of tobacco in western Tamil Nadu?

- Where is ecology 'located' vis-à-vis tobacco production?
- How have material aspects of tobacco production emerged *as a result of* the region's ecology?
- How have nature and labour been controlled in order to increase wealth and surplus extraction for producing tobacco?
- What does this tells us more broadly about socio-ecological change in Kongunadu and the attendant processes of agrarian change underway?

In line with the theoretical leanings of this thesis, my empirical approach is rooted in the ontology, epistemology and methods of a Marxist comparative political economy, defined as follows (Heyer and Harriss-White 2010, 1);

> *'…a comparative political economy approach that is empirically grounded and based on an undogmatic and critical engagement with Marxist theory in which agency, nonclass institutions and structures and struggles expressed through them play roles in capitalist transformation alongside class formation and class structure. The approach is historical, comparative and interdisciplinary. It is also one that assumes that the macro context is important for understanding the micro level and vice versa.'*

This approach is characterised by 'a continuing critical engagement with theory, grounded in empirical evidence, with analytical space for social agency' (Heyer and Harriss-White 2010, 3), thus research is simultaneously inductive and deductive. Specifically, 'This method takes empirical material seriously, deductively and inductively, and engages with theory from the perspective of local peoples' experience, mediated by first-hand research.' (Heyer and Harriss-White 2010, 4). The focus is therefore both on applying theoretical concepts to the material field, and on deriving theoretical insights from the field, allowing for an active engagement with the subjects of fieldwork (Heyer and Harriss-White 2010). This method is also concerned with understanding broader trends and patterns and thus draws on quantitative data, but ultimately relies upon qualitative data to better enable critical analysis and the interpretation of seemingly objective 'facts' (Devereux and Hoddinott 1993). Qualitative data also enables a deeper engagement with subjects given that they are able to answer questions in their own words, thus offering more agency to respondents (Bryman 2012). Finally, this approach is decidedly historical in developing its causal explanations, thus current-day processes are understood within the context of broader historical trajectories.

3. Arising issues of ecology and re-designed research

A key outcome of the inductive design of my enquiry was a major shift in focus from global health to ecology which I highlight here briefly. My initial research interest was around the impacts of neoliberal global governance, specifically its concentration of power within global institutions and policy frameworks (Harvey 2005), on local agrarian market systems and accumulation within them. I was especially keen to look beyond dominant neo-populist narratives of global agri-business – in this case tobacco – and how it has pauperised Indian farmers (for example see Shiva, Emani, and Jafri 1999) to examine a more complex global—local linkage, namely tobacco farmers and World Health Organisation (WHO) tobacco control regulation . I set out to do so within a concrete lens for understanding accumulation through production and exchange within the market – Harriss-White's 'systems' approach (1996, 2007) – and how it may be impacted by shifts in the regulation of the production and consumption of tobacco.

Tobacco production and exchange in Tamil Nadu is under-studied within the context of under-researched Indian tobacco in general (Harriss-White 1996). The best recent account – Harriss-White's 1996 book – draws on fieldwork that was over 30 years old by the time of my research, thus the specific empirical details, as well as agrarian capitalism more broadly, had shifted drastically in many ways. As such, my original methodological and theoretical approach was to revisit tobacco producing areas in northern and western Tamil Nadu, where Harriss-White's original research was based, and to undertake a closer examination of accumulation among farmers and traders today, focusing in particular on how this was being impinged by global tobacco control policies (the FCTC[28]) and their impacts at the local level. However as Harriss-White and Heyer suggest (2010, 4),

> *'The most valuable fieldwork/data collection is the fieldwork/data collection that produces surprises, data that do not conform to preconceptions, to what we think we know. This is surely the way that agency came back into (if it had ever left) what was essentially Marxist research'*

Within two months of embarking upon fieldwork, it became clear that the impact of tobacco control policies was not a central driver in shaping accumulation among tobacco farmers and traders. Certainly there were material impacts resulting from India's embracing of the FCTC such as increased regulation of tobacco advertising, health warnings on tobacco packets, and the closing

[28] This refers to the World Health Organisation's 'Framework Convention on Tobacco Control' (FCTC 2005). This is a legal treaty that came into force in February 2005, and includes over 180 member states that have ratified its aims of eradicating the consumption and production of tobacco (FCTC 2015).

down of tobacco shops located near schools and hospitals (K. S. Reddy and Gupta 2004; Dr Prakash Gupta 2014). With regards to chewing tobacco, a ban on the manufacture and sale of the country's most popular form of chewing tobacco, Gutka, had spread across state governments from 2012 onwards and impacted the marketability of chewing tobacco to a notable extent[29] (Ayyappan 2013). However this was not a key driver in explaining the shifting trajectory of accumulation among tobacco producers and traders, rather it became clear that the region's shifting ecology and its concomitant reshaping of socio-ecological relations of production was crucial. This became apparent to me when the initial interviews, observations, and informal conversations repeatedly, and sometimes exclusively, cited environmental issues such as rainfall, groundwater extraction, and state investments in canals as key issues plaguing tobacco production and trading[30].

I thus set about reforming my questionnaire about one-third of the way into my fieldwork, but without a robust theoretical frame of what I wanted to understand specifically with regards to ecology, I mainly used open questions in order to ensure the agency of my respondents in shaping my own understanding of the issue. The main problem with such an inductive approach is that given that ecology emerged from the field and not from my prior research agenda, its inclusion within my questionnaire was both late and initially without a clear theoretical focus, thus there will inevitably be areas where my data proves insubstantial on the topic in making broader assertions and drawing conclusions. For example, whilst irrigation was only one small aspect of my original questionnaire, it has taken on a far greater significance in subsequent analysis, however I did not anticipate this, and therefore my questions on irrigation sources and changes to this are relatively limited in many cases. Despite these shortcomings however, I would suggest that given my lack of foresight, I did not design a project where I was looking to prove that ecology was central in understanding tobacco markets. This is to say the research has absolutely not been environmentally-deterministic in its design, rather ecology emerged as a key factor of agrarian change through the design. In particular, in talking through what the greatest problems were facing cultivators, the issue of water came up again and again, to the extent that I was forced to reconsider my original focus in order to ensure that my analysis was representative. Obviously, the shift in focus has meant that there are limitations to the claims that can be made empirically, based on the material collected here. This said, the way in which ecology has emerged as a dominant feature of

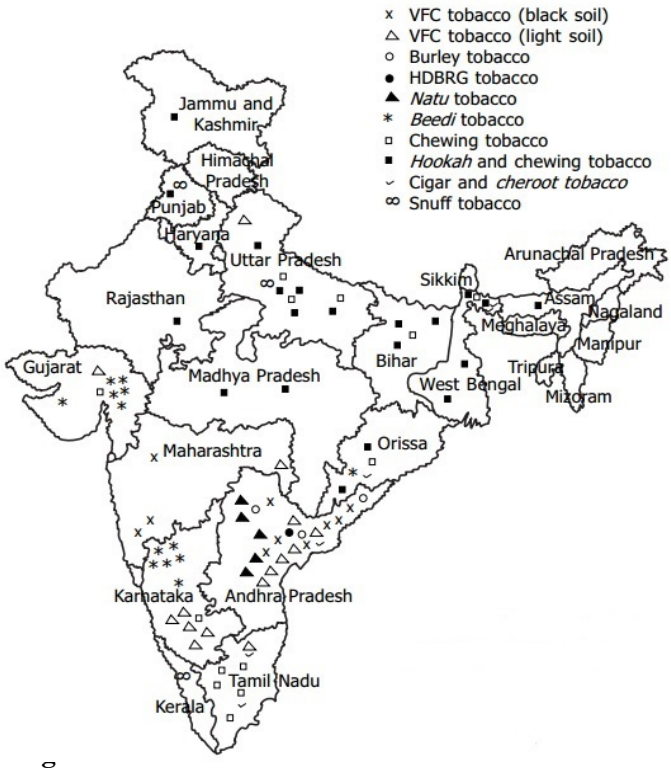
[29] The specific impacts of this upon accumulation will be outlined in Chapters 7 and 8.

[30] Interestingly, ecology did not come up as openly when farmers and traders were explicitly asked about why they are leaving agriculture. This is explored more clearly in Chapter 6.

agrarian change in the region does contribute to the existing literature by highlighting how ecology is deeply implicated in the social relations of change that characterise the Indian countryside today. In this light, whilst indicating some indicative broad trends shaping these processes of change that are evident in relation to tobacco in the area under scrutiny, this thesis, conscious of its limitations, also suggests fruitful areas for further, more systematic research.

4. Overview and case

Some of the issues discussed in Section 3 in relation to how ecology emerged as a key factor in agrarian change since my initial field findings can be further appreciated by providing a brief but concise overview of tobacco production in India. This section provides this overview, before moving on the specifics of my case.



Sourced from Reddy and Gupta (2004: 19)

4.1 Tobacco in India

India is the second largest producer of tobacco after China (Eriksen et al. 2015). India's tobacco consumption is notably large and heterogeneous, it is the second largest consumer of tobacco in the world, and the only country in the world where the *majority* of tobacco consumers use non-cigarette commodities, primarily traditional alternatives such as beedi[31], hookah[32], cheroot[33] and chewing tobacco[34] (K. S. Reddy and Gupta 2004). Tobacco was brought to India in the 16th century by Portuguese colonisers after they themselves discovered it in North America, where it had been cultivated by Native Americans for centuries

[31] This is a hand-rolled cigarette filled with cured tobacco and wrapped with a Tendu leaf (K. S. Reddy and Gupta 2004).

[32] This is a water pipe through which tobacco smoke is inhaled (K. S. Reddy and Gupta 2004).

[33] This is like a cigar but both ends are closed off (K. S. Reddy and Gupta 2004).

[34] This comes in numerous forms, including cured tobacco leaf, cut into pieces and coated in sugar water, to paan - cured and flaked tobacco mixed with areca nut, betel and slaked lime in a betel leaf (K. S. Reddy and Gupta 2004).

(K. S. Reddy and Gupta 2004). Both the British East India Company and the British Raj promoted the cultivation and sale of tobacco in India, focusing on developing palatable varieties for export through cultivation across the central and southern belts of the country in particular (K. S. Reddy and Gupta 2004). The crop experienced a resurgence in the 1970s after it became part of the post-colonial state's Green Revolution programmes, with the creation of a network of agricultural research stations focused on developing high-yielding and high-quality tobacco varieties spread all over the country. These 'Central Tobacco Research Institutes' are headquartered in Guntur, Andhra Pradesh, and are largely a revival of the imperial state's own tobacco research infrastructure (CTRI 2016; CTRI, Vedasandur 2014).

Today, as shown in Figure 3.1, the heterogeneity of the country's tobacco consumption is reflected in the production sector – different states produce different types of tobacco, with highly differentiated markets and commodities resulting from these varieties (K. S. Reddy and Gupta 2004). Furthermore, as agrarian research in India has repeatedly shown, heterogeneity in terms of class structure and capitalist transition across states, even across regions within states, is significant, thus the 'sector' is by no means unitary.

4.2 The case: tobacco in Kongunadu

Tobacco has been cultivated in Tamil Nadu for at least 200 years[35] (Buchanan 1807; Baker 1984a), and it remains a cash crop in the state.

Table 3.1: ***Tobacco cultivation by district 2012-13, in hectares***

Agro-climatic zone	District	Cultivation
North-Eastern zone	Thiruvannamalai	59
North-Western Zone	Salem	372
	Dharmapuri	47
Western zone	Coimbatore	47
	Tiruppur	151
	Dindigul	1090
	Erode	2166
Cauvery Delta zone	Nagapattinam	151

Table 3.1, sourced from (Government of Tamil Nadu 2013b, 2015)

[35] The crop's history in Tamil Nadu will be elaborated in Chapter 4.

In 2011-12, tobacco was significantly[36] cultivated in eight districts at highly-differentiated levels, as shown in Table 3.1. Of these districts, four (including the top two tobacco producing districts) are located in the western agro-climatic zone of the state, these are: Coimbatore, Tiruppur, Erode, Dindigul, and parts of a fifth district – Salem – also come under this zone. I decided to focus on this region as it collectively comprised the highest volume of tobacco production, and also represented a unitary political economy historically, as elaborated upon in the next sub-section.

In terms of who produced tobacco, production in the western region is notably dominated by the Konguvellala Gounder (henceforth 'Gounder') caste community, with Vanniyars dominating the Kaveri region in Salem and parts of Erode. However, there is little data to indicate class relations in the region. I was therefore unable to gain any meaningful understanding of the population prior to fieldwork. Given the inductive nature of my research however, this offered opportunities to better learn from the specificities of the field.

4.3 Overview of the region: demography and ecology

Tamil Nadu comprises around 4% of India's overall area and 6% of its overall population (Nagaraj and Jeyaranjan 2006; Census of India 2011). My research took place across five districts of western Tamil Nadu – Coimbatore[37], Tiruppur, Erode, Dindigul and Salem. Within these districts, I specifically undertook fieldwork in villages clustered around 8 market towns that are all historically known for tobacco marketing[38], these are indicated in Figure 3.2.

[36] Five tobacco-cultivating districts have been left out of this table because levels of cultivation are too low to warrant note, these are Kancheepuram (3 hectares), Villupuram (3 hectares), Vellore (4 hectares), Theni (2 hectares), and Tirunelveli (1 hectare) (Government of Tamil Nadu 2013a).

[37] Coimbatore district initially included both Erode and Tiruppur – Erode was bifurcated in 1979, and Tiruppur in 2009 (Govt. of Tamil Nadu 2016).

[38] The reasons for this will be outlined later in this chapter.

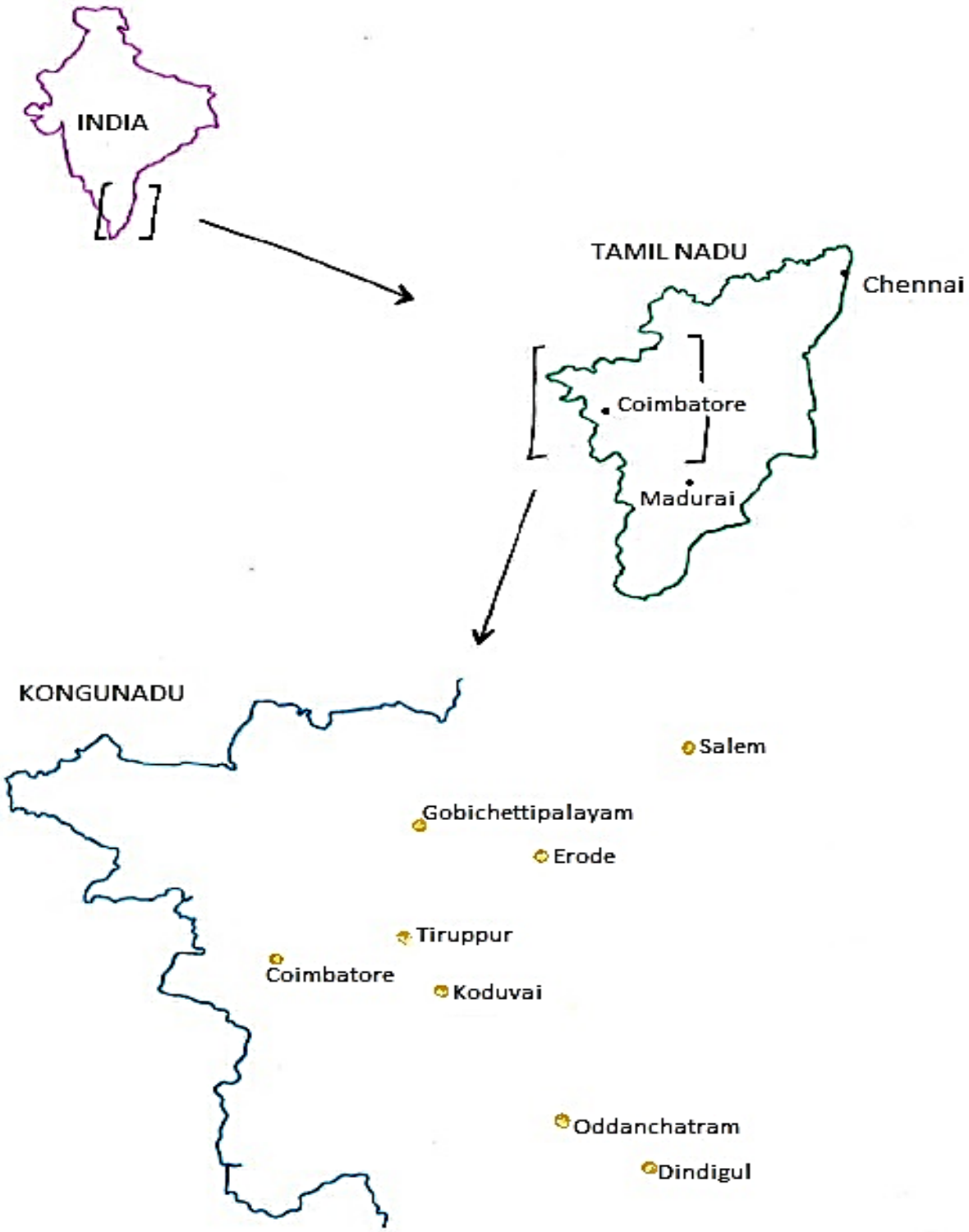


Figure 3.2: ***Fieldwork map***

Author's own

As outlined earlier, the western region of Tamil Nadu is notable for having been a politically-unitary kingdom – Kongunadu[39] – under the pre-colonial Chola kingdom, and earlier (Baker 1984a). It was subsumed under the Madras Presidency by the British – a regional governance unit spanning much of Tamil Nadu and Kerala – in 1799 (Chari 2004). However to this day, the region retains a caste and class structure that is distinct from other parts of Tamil Nadu, as will be expanded upon in the subsequent section. This region is historically known for its full and flourishing small-scale, commercialised agriculture, both under British colonialism and in the decades after Independence (Baker 1984a), and more recently for its successful shift to a small-scale industrial economy (Chari 2004). Both of these economies have been largely rooted in the accumulation and expansion of the region's dominant caste groups – the Gounders and Naidus (Chari 2004; Damodaran 2008). Though given the region's location on a historic borderland with Kerala, Andhra Pradesh and Karnataka, it comprises a heterogeneous caste make-up, albeit with remarkably few Brahmins in comparison to the rest of Tamil Nadu (Baker 1984b).

Yet it should be noted that Kongunadu is notably divided in terms of its levels of urbanisation, population size and GDP per capita as indicated in Table 3.2, suggesting a complex and differentiated demography and political economy.

Table 3.2: ***Population and GDP statistics for Districts in Kongunadu***

District	***% state population***	***% urban population***	***Per capital GDP (INR, 2008-09)***
Coimbatore	4.8%	76%	₹65,478 (includes Tiruppur)
Dindigul	3%	37%	₹ 42,669
Erode	3.1%	51%	₹ 54,929
Salem	4.8%	51%	₹ 46,089
Tiruppur	3.4%	61%	N/A

Table 3.2, sourced from (Census of India 2011; State Planning Commission 2012)

In terms of agriculture, the different districts within Kongunadu also comprise highly differentiated patterns of production, as indicated in Table 3.3:

[39] It should be noted that 'Kongunadu' actually comprised the current-day districts of Coimbatore, Tiruppur and Erode, and large parts of Namakkal, Nilgiri and Karur districts, however I include Dindigul and Salem in analysis within this chapter as the northern border region of Dindigul and the western border region of Salem also constitute Kongunadu, and these were areas where tobacco is cultivated. I also leave out Namakkal, Nilgiri and Karur districts as these did not comprise any tobacco production. In subsequent chapters, analysis of 'Kongunadu' more generally limits itself to Coimbatore, Tiruppur and Erode districts.

Table 3.3: ***Production of principal crops in Kongunadu, 2013-14***

District	*% cereal production to state total*	*% pulses production to state total*	*% production of other principal crops*[40] *to state total*
Coimbatore	0.7%	0.9%	0.6%
Dindigul	2.7%	1.5%	1.1%
Erode	2.8%	0.5%	5.6%
Salem	4.2%	4.1%	5.8%
Tiruppur	2.3%	1.3%	1.1%

Table 3.3, sourced from (Government of Tamil Nadu 2014)

Coimbatore and Tiruppur (central) are the most urban districts, and along with Dindigul (south), are the least engaged in agricultural production. Yet Dindigul has a low urban population, speaking to the existence of rural non-farm work such as a dairy industry (Soundarapandian and Kumar 2002) and leather tanning (Millie Nihila 1993), as well as the persistence of agricultural commodity production. Erode and Salem (north) have almost equally-distributed urban and rural populations. Erode comprises high levels of industrialisation, most notably textiles (DCMMSME 2002), and both, Salem in particular, continue to undertake agricultural commodity production on a significant level. As such, there are three clear zones emerging within Kongunadu. The northern zone (Erode and Salem) continues to cultivate to a significant level whilst also comprising large urban areas of non-farm work. The central zone (Coimbatore and Tiruppur) is the most industrial, comprising less agricultural production and high levels of urbanisation. The southern zone (Dindigul) is the least urbanised region but does not undertake the highest levels of agrarian production, relying instead on rural small industries.

Looking briefly to landholdings in Table 3.4, the central and least agrarian zone comprises the highest proportion of medium and large holdings, whilst the northern and southern comprise greater proportions of marginal and small farmers. The overall picture suggests uneven intra-regional development within Kongunadu, with some level of cohesion across the northern, central and southern zones of the region.

[40] Groundnut, Gingelly, Sugarcane and Cotton.

Table 3.4: ***Kongunadu land holding size pattern in hectares (2011-12)***

Region	Marginal (1>)	Small (1 to <2)	Semi-Medium (2 to <4)	Medium (4 to <10)	Large (10<)
Coimbatore	46.5%	27.8%	17.5%	7.3%	0.9%
Tiruppur	38.5%	28.1%	21.7%	10.5%	1.2%
Dindigul	67.9%	19.0%	9.2%	3.4%	0.4%
Salem	73.3%	18.5%	6.7%	1.4%	0.1%
Erode	53.2%	10.8%	14.6%	4.3%	0.3%
Average	55.9%	20.8%	13.9%	5.4%	0.6%
Tamil Nadu	77.3%	14.6%	6.2%	1.8%	0.2%

Table 3.4, sourced from Census of India (2011)

This apparent cohesion is complicated, however, through Kongunadu's complex ecological profile. The central zone, Coimbatore and Tiruppur, suffers from low rainfall (<750mm in the rainy season) and poor riverine access (Government of Tamil Nadu 2007). In the north, whilst Erode also suffers from low rainfall, Salem receives a higher level (750-1,000mm), and both Erode and Salem enjoy access to the large riverine system of the Kaveri river (Government of Tamil Nadu 2007). Dindigul enjoys relatively higher rainfall compared to the central zone. As such, the central zone suffers from the most acute lack of water. In addition to this, the entire western region of Tamil Nadu is dominated by a bed of gneissic rock, rendering groundwater extraction particularly costly, and also with high temperatures, rendering tank storage unfeasible due to high levels of evaporation (Baker 1984a; Government of Tamil Nadu 2007). Different districts also have very different levels of surface water, with regards to smaller rivers, reservoirs and canals (World Bank 2004), and different types of soil requiring different levels of irrigation (Government of Tamil Nadu 2007), ultimately leading to highly uneven ecologies, as explored in the subsequent chapter.

5. Suitability of the case

Despite the fact that I had not set out to study ecology in relation to tobacco production, I would argue that the emergence of ecological factors as central to understanding the dynamics of tobacco production was in large part a testament to the suitability of tobacco as a case for understanding the shifting dynamics of ecology vis-à-vis agrarian change in the region. This is because, as outlined

in the introduction, tobacco represents a historically successful cash crop that is currently in decline, a process that is affected in large part by environmental change. As such, it offers glimpse into why successful farmers and traders are choosing to move away from agriculture, as well as why others such as labourers or smaller farmers may be forced to leave. The former allows us to understand how the locus of rural accumulation is shifting through a socio-ecological lens, something which would not be evident in studying change borne of struggle and crisis alone.

6. Conducting fieldwork

I arrived in Tamil Nadu in early December 2014 and by mid-December I was staying in Coimbatore city, which is located at the heart of my field area, with tobacco-growing villages located a maximum of two hours by car from where I resided. I employed a field assistant almost immediately (the daughter of my host family in Coimbatore), and she owned a car, so we were able to share driving duties. I began my research by visiting Tamil Nadu's regional Central Tobacco Research Institute (CTRI) office, located in Vedasandur, Dindigul District. This enabled me to get an immediate sense of the state-level scenario, and CTRI facilitated an introduction to several larger tobacco farmers, allowing me to begin fieldwork in tobacco-growing villages. I also met with an agricultural economist at the Tamil Nadu Agricultural University (TNAU) in Coimbatore who was himself from a former tobacco-growing family in the region and thus put me in contact with relatives that continued to produce and trade tobacco, as well as offering key regional expertise on issues of ecology and agrarian change.

6.1 Research design

My initial enquiry was focused on how global health regulation has affected the tobacco market. As such, I wanted to understand the spatial disaggregation of the market, the activities contained within the market, the social make-up of the market, and how it was shaped by the state. I was also concerned with the production of tobacco specifically, thus I was interested in the ways in which surplus value was extracted from labour through the production process, who was undertaking exploitation, the forms of exploitation that were being undertaken (along caste/ gender lines?), and how this was shifting in the current era. Finally, I was interested in understanding the role of tobacco production vis-à-vis accumulation, specifically referring to levels of profit from tobacco, from other crops, from non-farm activities, the use of credit, and costs of cultivation.

The key shift in my initial focus came with the introduction of ecology. This followed the initial outcome of interviews, where informants were insisting with particular emphasis on the relevance

of water. I thus had to further think about where ecology is located in the production of tobacco, how tobacco production can be understood as a response to the particularities of different ecologies, how this arose historically, how labour is articulated with ecology, how the state has reshaped socio-ecological relations, and how this is all changing in the current era. These are all concerns that have become central to the theoretical framing deployed in this thesis. In many ways, initial findings led me not only to rethink my research design but also to the development of the theoretical framework developed in the previous chapter, which combines critical agrarian change literature with Marx-inspired ecological insights.

Initial research further showed a clear demarcation within the overall tobacco market in terms of how tobacco is cured, and the different commodity markets that each form of curing gives rise to. I chose to focus on the two markets that comprised together 90% of all tobacco in Tamil Nadu[41], these were the Sun-cured tobacco market (comprising 70% of all cultivated tobacco in the state) and the Jaffna-cured tobacco market (comprising 20% of all cultivated tobacco in the state) (CTRI, Vedasandur 2014). These represented clear markets despite encompassing numerous tobacco commodities within each, because the bulk of each market's production process, curing process, and exchange process were largely unitary, and the specific forms of market exchange were also relatively uniform in each market.

Therefore, in light of these complex and changing aims, I ultimately used a spatially disaggregated research design, which focused on villages in and around the 7 market towns that constitute the mainstay of the whole tobacco sector in Kongunadu. These towns represent different nodes within the Sun and Jaffna markets, which are the focus of the field chapters, and my case studies. For example Idapaddi in Salem district is renowned for the retail of the highest-quality Sun tobacco in the state within its local markets, whilst Koduvai in Tiruppur district is known for having the largest concentration of Jaffna traders and trading activities in the state. The spatial disaggregation thus allowed me not only to capture the unevenness of development across the various agro-ecological zones of Kongunadu, but also to capture the various activities within the overall market spatially, and to locate them within the particular local political economy and ecological landscapes of the different regions of Kongunadu. This was crucial in seeking to understand how particular productive activities emerged following the impact of particular ecologies, in line with my findings and my theoretical framing.

[41] The remaining 10% is comprised of salt-cured tobacco in coastal Nagapattinam district, and Pit-cured tobacco which is located around Palladam in Coimbatore district; both of these forms of curing are in severe decline.

It should be noted however that in seeking to analyse tobacco across space, I sacrificed a level of analytical depth. Firstly, I did not undertake any village-level surveys, largely due to time and resource constraints. As such, I am unable to concretely situate tobacco farmers and traders within specific village political economies. Secondly, my research sample was not representative of tobacco farmers/traders for two reasons. Firstly, put simply, 'You can't create a sampling frame for markets when you don't know what it is you are sampling' (Harriss-White 1996, 56). There exists no macro-level data on tobacco farmers and traders in Tamil Nadu, and what little there is was treated as unreliable even by the central research station (CTRI, Vedasandur 2014). As such, I was unable to develop clear, representative strata for my population. Secondly, a key problem was the difficulty of actually finding farmers and traders willing to talk about tobacco. As highlighted earlier, in the three years preceding my research, a number of states across India, including Tamil Nadu, had banned the manufacture and sale of Gutka (Ayyappan 2013), the primary chewing tobacco commodity in the country (K. S. Reddy and Gupta 2004). Furthermore, the new national Minister of Health and Family Welfare in May 2014, Harsh Vardhan, took up tobacco control as a central cause, and came into confrontation with some of the country's more powerful tobacco farmers' lobbies in late 2014 with his continual support for curbing consumption (Iyer 2014). He launched a direct attach on those making pro-farmer arguments by suggesting that tobacco production was besieged by indebtedness, and thus a shift to alternative crops would alleviate poverty among farmers rather than cause it (Iyer 2014).

Vardhan also issued numerous directives to state-level governments to curb production within states, and this meant that in the case of Tamil Nadu, representatives from the Health Department and Adayar Cancer Institute in Chennai made field visits to Kongunadu and other areas to dissuade tobacco farmers from cultivating tobacco. The state's Ministry of Agriculture also stopped giving crop insurance and certain subsidies to farmers that identified tobacco as one of their main crops. As such, farmers and traders within the tobacco sector in Tamil Nadu were quite reticent in most cases to discuss tobacco, and many were under the impression that it had been banned entirely, thus in general agrarian actors did not want to be identified with its cultivation and exchange. This made research more difficult, and it made a representative sampling frame impossible given the vast number of respondents that refused to be interviewed. Research design thus focused on highlighting regional variation, at the behest of a more localised approach, and was shaped by the particular difficulties of researching tobacco. While I am aware of these limitations, I do believe that the spatial mapping provided in the thesis is a crucial one, to locate tobacco in the complex development of a region that is highly differentiated, to illustrate how this differentiation is affected

by both social and ecological factors and their interplay, and to provide a baseline for future more in-depth research.

6.2 Field methods

I ultimately undertook a geographically expansive sample of 68 farmers and traders across 37 villages and towns, clustered around 8 market towns, using snowballing techniques to build networks of interviewees among both farmers and traders and then seeking out particular farmer/ trader types for interviews to fit the various strata of Sun and Jaffna markets. Inspired by Harriss-White's approach which she characterises as '…talk[ing] as casually as possible around a structured questionnaire' (1996, 60), I developed initial questionnaires for farmers and traders (see Appendices 1 and 2), and these were adapted throughout fieldwork as it became clear that certain aspects were less relevant than others to the case at hand. The questionnaires comprised open and closed questions which sought to gather both qualitative and quantitative data, with a focus on open questions that enabled insights to arise from the field as part of the overall inductive approach.

A typical interview would involve me being introduced to a farmer or trader by a previously-interviewed farmer/trader, often accompanied by them, followed by an initial informal conversation over tea/ snacks, usually about my background[42]. I would also narrate the reasons for my research, and seek verbal permission from subjects to both conduct and record interviews. Anonymity of name and even village were always a requirement, and in a few cases, subjects asked not to be recorded. We would then proceed to go over the questionnaire in a fairly loose way, allowing conversation to blossom wherever subjects felt animated and skipping over other questions where subjects were either unwilling or unable to respond. Interviews were primarily conducted under the shade of trees on a farmer's plot (thottam), or inside dusty tobacco warehouses (godowns) in the case of traders, and thus we were constantly interrupted by curious workers, children, grandchildren, neighbours, and so on. As such, interviews often took several hours and yielded uneven results in terms of depth of conversation.

I also relied on observation and informal encounters as a central research method. This was only made possible by my command of the Tamil language. I generally spent a few days in a village

[42] All of the respondents were very curious about my background, particularly the fact that I spoke English with an English accent and Tamil with a Chennai accent, and so in most cases, I would offer a brief narrative of being a first-generation migrant and how I remained close to my family in India. This had the effect of rendering me a simultaneous outsider and native, leading to issues of positionality as elaborated on later in this chapter.

before conducting any interviews, both in common areas such as tea-shops and in people's houses or in the fields, talking with farmer and trader families as well as agricultural labourers. I held endless informal conversations with numerous other people such as agri-chemical shop workers, irrigation experts, engineers, and researchers. I took copious field notes after these 'encounters' and after long periods simply observing aspects of tobacco production or marketing. These form a central part of my analysis, and also offer insights into performative aspects of the agrarian economy that are harder to address through interviews, for example intra-household gender dynamics or forms of caste-based discrimination. I further interviewed select representatives from the Tamil Nadu State government, Tamil Nadu and all-India non-governmental organisations (NGOs) working on tobacco control, and scientists from the Tamil Nadu CTRI.

Finally, secondary data from reports, archives and existing literature was used to develop stronger macro-level analysis around the role of the state in particular, but also around historical aspects of agrarian capitalism in Kongunadu. This was largely done after primary data collection to supplement findings from the field. The experiences and limitations of my fieldwork will now be outlined in the subsequent sections.

6.3 Positionality

Issues of locality, caste and gender significantly shaped the scope of my research. I was in the position of being both an insider and outsider in the field in question – I moved away from Tamil Nadu as a young child, but remain close to my family there and a fluent Tamil speaker. Therefore, I was both a local (in the broadest sense of the word, meaning from Tamil Nadu) with regards to language, dress and custom to a certain extent, but once I began to converse with anyone, I would soon be identified as an outsider.

The specific character of my 'outsider status' was, I would suggest, heavily mediated by caste and gender. I am from a Tamil Brahmin family and as such, represent a privileged and disliked caste among much of the non-Brahmin community, yet the fact that I was a woman travelling alone (without a husband or clear male representative – my young, female research assistant did not count), meant that I was treated with familial and often protective kindness and not animosity. Chari (2004) who has also undertaken research in Coimbatore in the last two decades is from the same caste as I am, and his account as a male Brahmin offers a more cautious approach. He writes that he made an effort not to use a 'Sanskritised Tamil' that is associated with Tamil Brahmins (Chari 2004, 46–47). Whilst I made sure not to use overly Brahminnical words and phrases, I did little else. Furthermore, my questionnaire included a question about the caste of the subject of the interview, thus I was often asked the same question and responded openly.

I did encounter a great deal of consternation as to why a Brahmin girl with the privilege of a British education in her late twenties would be undertaking seemingly gruelling research rather than being in an office job and/or married with children. I was repeatedly asked about the fact that I was unmarried and without children, and several farmers expressed great sympathy with my 'poor family' for the life choices I had made – apparently eschewing a privileged existence to roam the countryside talking to farmers and developing a 'black skin'. These encounters were primarily jovial, and I would suggest here that my gender combined with my life choices which made me a clear 'outsider' in relation to typical Tamil Brahmin women, as well as the fact that I travelled with another young woman (who was of mixed upper-caste background – Mudaliar/ Pillai, not Brahmin), enabled farmers to build a rapport more quickly.

However I would also suggest that my caste and gender in particular presented obstacles in certain ways. The most obvious was around being taken seriously with regards to more personal, financial information. Farmers and traders alike were very reticent to tell me about levels profit/ use of credit/ any other personal finance data. References were often made to both my age and gender in justifying this – 'We don't talk about money with young girls!', and the same issue reappeared throughout my interviews. My gender and age, as well as the fact that I was unmarried and thus still a 'girl' (ponnu*),* meant that I was not taken as seriously as I suspect a male researcher would have been. Farmers that did give financial data offered rounded numbers and would not go into specifics. A key limitation of my fieldwork was thus a lack of robust data on profits and concurrently, accumulation. In lieu of such data, the veracity of farmers' accounts of tobacco as a crop that has historically offered high profits was taken into account, given that this was repeated across the different respondents in my research and also reinforced in wider literature (Baker 1984a; Harriss-White 1996). Furthermore, rather than seeking to document profits, analysis is focused on the dynamics behind production and exchange, and thus on the dynamics underpinning accumulation.

6.4 Alliances

The issue of power was complex in my field, and it took me some time to navigate the specific forms of power that operated, both class and non-class. Chari writes about 'finding [himself]…located socially through a series of compromises and solidarities' (Chari 2004, 45), and this offers a good description of my own experiences in the field, particularly with regards to gender and caste.

In terms of gender, whilst I believe that being a woman enabled me to appear less threatening to many farmers and traders and pushed them to talk more freely than they may otherwise have about

their cultivation/ exchange of tobacco, it also meant, as outlined, that I had to work somewhat harder to be taken seriously. This led to compromises on my part. Specifically, I was unable to formally interview women for the most part due to my need to seek alliances with male household heads. The specific communities within which I undertook my research were undoubtedly highly patriarchal, though they were clearly undergoing some transformations in this area, particularly among the Gounder caste community (Heyer 2016a). Nevertheless, intra-household dynamics were decidedly patriarchal, such that if we were to ask for the 'farmer'*(*vivasaayer*)* in the household, the male household head would always step forwards, despite the fact that in the vast majority of cases, women undertook significant amounts of agricultural work and would thus have been fully capable of answering my questionnaire. Kapadia (1999, 80) has noted the phenomenon of 'social blindness' in research on the contributions of women to agricultural economies in South Asia, suggesting that women undervalue and under-report their own work, and that men also fail to highlight women's contributions. Despite this compromise, and the relative paucity of formal interviews with women, however, I was able to informally chat with women extensively on almost every trip. The majority of these conversations took place over lunch or a snack. They would cover more personal subjects, such as the emotive dimensions of livelihoods shifting and intergenerational aspirations. Nevertheless, they do unveil crucial information in relation to rural livelihoods linked to the production of tobacco, and strengthen other data on farming and agrarian issues. These conversations were documented through my field notes throughout, and thus constitute a key part of my field findings. As such, I believe that women's voices were certainly part of this research, albeit outside the remit of formal interviews.

In terms of caste, as my main respondents were farmers and traders, I had to form alliances with the main agrarian caste communities that constituted the majority of these groups – Gounders and Vanniyars. However this meant compromises in terms of speaking with labourers. Specifically, these farmers expressed suspicion and even anger when I would ask to interview wage labourers on their farms*,* and when I was able to do so, it was under the watchful eye of the farmer, who often asked leading questions such as 'You're all happy here aren't you? I treat you well don't I', and so on. I was therefore unable to interview any landless wage labourers, resorting instead to two focus groups and observations and informal conversations. As a result, my analysis of exploitation and appropriation by farmers and traders is confined, to an extent, to the voices of capital, and my own observations. I say to an extent however because the exception was among PCP households, where farmers were able to recount both their experiences in undertaking exploitation/ appropriation through hiring wage labour, whilst also recounting their experiences as hired wage workers on other farms or in industrial settings. I therefore came to understand how

certain classes of labour were exploited in their own words. I was largely able to study labour 'through the eyes of capital' (Mezzadri and Srivastava 2015, 11), but unable to offer a more labour-centred understanding of how exploitation and through this production takes place.

6.5 Power and the market

The final issue of note here is that of power within agricultural commodity markets more broadly. Whilst neoclassical studies either ignore power or see it as an issue of knowledge asymmetries alone, Harriss-White (1999) sees the market as inherently constituted by uneven power relations. Within this, the trader or merchant is largely seen to hold the most power given their structural domination over producer and labourer (Harriss-White 1999), thus this constituency represents a crucial but also notoriously difficult group to interview within critical research.

As Harriss-White notes, merchants 'refuse to talk…They lie… [and] They evade' (1993, 138). Power wielded by merchants is both behavioural and structural, and thus needs to be unpacked on different levels (Harriss-White 1999). However given their importance in shaping market exchange, it is crucial to find a way to interview merchants (Harriss-White 1999, 270),

> *'Power is a sensitive issue in agricultural markets. There are ways of asking sensitive questions which produce a disastrous response: clamming up, or threats of physical violence. There are more constructive ways of talking about power, and experience has taught me that these field work practices yield interesting responses.'*

In seeking to build rapport with traders, I quickly learned which questions elicited antagonistic responses (anything on earnings, tobacco's detrimental health impacts, and state regulation of tobacco), and asked these last, once a relationship had developed, or not at all in cases where the interview with the trader was already going badly. Tobacco merchants were also rarely alone – there was an open-door policy throughout villages and towns, and owing to the fact that they often had less to do than producers, merchants were most likely to be found in groups at someone's house, taking tea, chewing tobacco, or drinking alcohol. As such, I on occasion had to conduct interviews with groups of male traders, sometimes with producers around, so asking questions around price-setting, personal debt and personal finances proved more sensitive. Nevertheless, I became well-known in the region after being there for six weeks or so, and traders came to trust me, thus interviews improved greatly over the course of fieldwork.

6.6 Ethics

The research design and implementation was conducted in line with SOAS' Research Ethics Policy (SOAS 2015). Ethical considerations included ensuring that interview subjects and those being observed were always aware of who I was and what I was researching. I sought verbal consent from all interview subjects, focus group subjects and also anyone that I wanted to observe for long periods such as labourers on a particular thottam. The greatest difficulty was in explaining why I was conducting my research, but an explanation of this nature proved crucial in dispelling suspicion that I was a state official/NGO worker coming to dissuade farmers/traders from engaging in tobacco markets. Abstract discussions about how I wished to contribute to theorisations of agrarian capitalism with a focus on ecology and non-class relations were certainly not suitable. As such, I soon developed an explanation, with great help from my field assistant, which highlighted an interest in understanding the changing nature of agriculture in the region through the case of tobacco farmers, given their historical success at accumulating and expanding through the crop. This elicited trust and interest among most respondents, and also led many to offer political statements in favour of tobacco cultivation, and requests for me to use my data in explaining the advantages of tobacco production to stakeholders within debates on tobacco control. As such, in light of my ethical duty to my respondents, I have also written on the policy implications for tobacco control that emerge from my research (see Natarajan 2018).

7. Conclusion

This chapter has outlined the development and implementation of my field research and in doing so, has sought to offer a pragmatic assessment of the limitations of fieldwork. The range of issues highlighted in the theoretical framework, the vast geographical region which I covered, and the usual limitations that come with doctoral research – time, budget and so forth – mean that I have developed a spatially broad data set which encompasses a range of classes, political economies and regions at the behest of a deeper, more focussed body of data. The reworking of my research enquiry to address the importance of ecology, which emerged through the inductive research frame, also led to some limitations given that I had not originally developed a clear theoretical basis for such an enquiry. Furthermore, the 'compromises and solidarities' (Chari 2004, 45) I made in the field resulted in certain notable groups being left out of my research interviews – wage labourers and women in particular, though observation allowed me to analyse dynamics among both groups vis-à-vis shifting patterns of exploitation, as subsequent analysis will explore.

Despite these complexities and limitations however, I was ultimately able to develop a picture of tobacco production and environmental change in Tamil Nadu, and how they are articulated. Field data will be analysed in Chapters 6-8. The next chapter first looks to the historical nature of

agrarian production and accumulation in Kongunadu, before the subsequent chapter examines such processes from the post-war era to the present day, thus offering a broad and historical picture to contextualise field data.

Chapter 4
Agrarian capitalism and tobacco in Kongunadu: 19th and early 20th centuries

1. Introduction

This chapter provides a historical account of *agrarian capitalism in Kongunadu. Within this, it highlights the centrality of ecology in the story of Kongunadu's* agrarian history, and takes a closer look at the historical development of tobacco production and exchange in this region.

Historical analysis is crucial to this enquiry for two key reasons. Firstly, class relations are understood to be an evolving category, rooted in the historically-specific agrarian change that a particular region underwent (Banaji 2010). This chapter will thus draw on existing accounts of agrarian and change in the region[43] to highlight how specific class relations emerged in part also through its particular agro-ecology. Secondly, in seeking to understand the scenario in Kongunadu today, it is necessary to understand how accumulation has historically taken place in the region, and how this has changed over time. This chapter therefore seeks to establish the beginnings of agrarian change in Kongunadu, in preparation for an analysis of the present day.

This chapter develops three key arguments in the course of historical analysis. Firstly, I argue that the particular form of agrarian production that developed in Kongunadu was affected to some extent by the ways in which farmers drew on the wealth of nature. Impermeable gneissic rock, high temperatures and low rainfall combined with thirsty soils in much of the tract rendered well irrigation the only viable option for accumulating cultivators. In other areas, soils required high levels of labour power, therefore high levels of capital investment and expenditure respectively

[43] Primarily Baker (1984a) who provides the most comprehensive analysis, also Cederlöf (1997), Chari (2004) and Mahadevan (2014) from an industrial perspective and Harriss-White (1996).

were needed to sustain even minimal agriculture[44] (Baker 1984a; Harriss-White 1996; Chari 2004; Damodaran 2008). Agriculture in general therefore drew on the wealth of soil and water in order to succeed, with farmers drawing water from the ground using advancing irrigation technologies, and this in turn shaped the particular form of agriculture that proliferated – small scale, with well-developed agro-technology, and commercially-oriented. In short, local famers of different types and classes were able to continually appropriate water through new technologies. Secondly, in seeking to understand who best managed to appropriate and command nature for the purpose of accumulation and how, I build on the work of Guha (2013), and suggest that the success of the Gounder community was largely due to their exploitation of labour and appropriation of nature. Habits of frugality and toil, which are often remarked on when discussing Gounder economic success, were socially-forged among this caste group, thus showing that caste largely reflects the political economy of power, as well as being a socially-constituted system of customs. In other words, the point is not about these narratives being true or untrue. The point is how their social construction enables a given set of power relations to reproduce, as certain images may not reflect reality, however, they may nevertheless shape it (Salzinger 2003).

I also highlight the role of other caste groups in the story of Gounder success, notably the 'Kammavar Naidus' (henceforth 'Naidus') as early industrial capitalists, and Madharis as agricultural labourers and leather workers (Baker 1984a; Harriss-White 1996; Chari 2004; Damodaran 2008; Mahadevan and Vijayabaskar 2014). Finally, in drawing together these arguments with regards to the case in question, I develop the existing narratives of Gounder success (see Chari 2004) to suggest that the specific form of capitalism which was starting to emerge by the late 19th century – small-scale, market-centric production – greatly suited the proliferation of tobacco, which offered high returns in a short space of time, and lent itself to diverse and expanding commodity markets[45] (Baker 1984a, Harriss-White 1996, Cederlöf 1997).

[44] It should be noted that the combination of low rainfall, high temperatures and soils requiring irrigation or labour is not unique to this region, rather it is found in areas across India (Harriss-White 2008). Certainly, I would suggest the severity of the region's rainfall, the lowest in Tamil Nadu (Government of Tamil Nadu 2015), combined with the regions particularly deep water table, submerged below a bed of gneissic rock (Farmer 1977; J. Harriss and Harriss-White 2007), gave rise to a particularly difficult terrain in which to undertake agriculture. However this chapter is not seeking to suggest that the form of agrarian capitalism that emerged in Kongunadu is unique in terms of the region's ecology, rather to show how the particular form of capitalism is affected by the region's particular ecology, as a means of developing similar analyses about other regions in India.

[45] This argument does not suggest that Kongunadu's agrarian capitalism or the flourishing of tobacco are unique, rather it simply seeks to situate tobacco within the broader story of regional agrarian accumulation.

The chapter is structured as follows. The first section focuses on 19th century Kongunadu, looking at agrarian production in this period. The subsequent section goes on to detail how established agrarian capitalism developed over the first half of the 20th century, and how a specific caste group went on to succeed in an increasingly commercialised agriculture sector in this period. The final section then details how tobacco fits into this picture, highlighting its suitability to Kongunadu's particular form of production.

2. 19th century: ecological origins of agrarian capitalism

In looking first to the actual emergence of agrarian capitalism more broadly in Kongunadu, I argue here that the region's agro-ecology plays a central role in the specific character of agrarian production that emerged. Two dominant narrative accounts by Christopher Baker (1984a) and Sharad Chari (2004) provide a compelling interpretation of how Kongunadu agriculture transformed from predominantly dryland food production in the 19th century to market-oriented production by the early 20th century. These narratives highlight Kongunadu's frontier location, the introduction of rail links, the introduction of Cambodia cotton in the early 20th century, and the characteristics of the region's dominant caste group, the Gounders – specifically their reputation for hard work, spreading risk across numerous crops/ enterprises, caste-based financial assistance, and caste-based labour control – as drivers of accumulation and expansion (Baker 1984a; Chari 2004). Both authors also highlight Kongunadu's environment as part of their contextual explanation for why cultivation was necessarily intensive among irrigated farmers. I thus build upon their analysis and look at how agro-ecology can be understood as impacting agrarian change rather than just the context within which it took place.

2.1 Ecology of cultivation in Kongunadu

Kongunadu is an upland basin located between the mountainous Ghats to the west and the hills to the east (Baker 1984a). It was originally part of the kingdom of Mysore which is located in current-day south-east Karnataka, but was 'settled' by the British East India Company in 1799, thus 'mechanisms of revenue assessment [were] put in place', and it became part of the Madras Presidency until Independence in 1947, albeit through a relatively 'minimal style of governance' on the part of the British[46] (Chari 2004, 146). Prior to British annexation, small-scale cultivators in

[46] Baker has argued that Britain's colonisation of India cannot accurately be characterised as a 'simple luck-dip for imperial gamblers' unlike many other lands under British colonial governance (Baker 1984a, 421). Instead, he suggests that the British primarily used India as 'an invaluable overseas headquarters', and in the case of agriculture, this largely meant two things: revenue collection, and the maintenance of a strong system of commodity trading (Baker 1984a, 421–22).

Kongunadu had been producing for markets for centuries, thus the region was characterised by a particularly early form of market-centric agriculture. Baker suggests that the region had historically supplied food, spices and textiles to the Mysore court during the 18th century, but following demise of the court in 1799 through Britain's defeat over Tipu Sultan, trade in the region deteriorated, and thus by the early 19th century, agricultural production was minimal (Baker 1984a, 201).

In 1801, when Buchanan passed through Kongunadu, he noted its low population density, commenting that vast tracts of land which had clearly been in use as agricultural settlements now lay abandoned (Buchanan 1807). Throughout the early 19th century, the region was sparsely populated and primarily consisted of dryland agriculture, focused on the cultivation of food crops, primarily coarse grain such as millet and sorghum, and smaller amounts of cash crops such as castor, horse gram, cotton and sesame (Chari 2004, 149). However even basic, dryland cultivation was characteristically more investment-driven than in other parts of Tamil Nadu at the time, this was due in part to the region's difficult terrain. Kongunadu was characterised by two types of soils: thick black soil, which became easily waterlogged when wet or tessellated when dry, and light, loamy red soils, which required significant irrigation to be arable. To render each cultivable, black soils necessitated high levels of labour for ploughing, and red soils required high levels of irrigation. However due to their 'deterringly harsh characteristics', the soils of Kongunadu also remained relatively unworked and thus retained high levels of soil fertility (Baker 1984a, 201). Thus in order to appropriate[47] the soil's significant nutrient wealth, or rather to harness the 'special contributions' of nature to production (Burkett 1996, 334) cultivators had to procure water, or contend with sustained labour costs, in undertaking cultivation.

Procuring water came with its own problems in this tract. Kongunadu has the lowest levels of rainfall in Tamil Nadu, as the particular configuration of the Ghats to the west means that a 'rain shadow area' is formed, rendering the climate unusually dry (V. Srinivasan et al. 2014, 7). There are also very few rivers in the region, and water storage is a problem, temperatures in the region are very high, and therefore tank irrigation is unfeasible due to high levels of evaporation. This means that cultivators requiring irrigation relied on wells in harnessing nature's wealth. Yet to do so, farmers had to reach a low-lying water table below a hard bed of gneissic rock which stretches across much of the western part of the state, and comprises shallow and deep aquifers[48] that are

[47] The term 'appropriation' is used here and throughout the thesis henceforth to indicate the means by which nature's wealth is extracted, using means of production such as labour power and technology, as indicated by Marx (1976) and reinforced by Burkett (1996, 2014).

[48] An aquifer is a bed of rock that is water permeable, thus it is exploitable as a source of groundwater.

spread unevenly across the region, thus leading to uneven access to water at different points (V. Srinivasan et al. 2014). As a result of this, drilling technology was required to dig wells, and then subsequent investments in cattle and leather were required to operate the kavalai system[49] of cattle-drawn water from wells in leather bags (Cederlöf 1997). Cultivators therefore had to maintain their own wells, and thus garden plots of land, known as thottams, began to flourish – these were characteristically 10 acres or below, and situated around a single well. Buchanan notes the existence of 20,000 wells in the early 19th century when he travelled through the region (Buchanan 1807; Baker 1984a). With well irrigation, farmers were able to cultivate crops year-round, and thus keep up with investments in maintaining wells, and in paying for the kavalai system of drawing water (Baker 1984a; Cederlöf 1997).

Cultivators looking to undertake even basic production in tracts of black soil were therefore reliant on their own labour and on wage labour, and in red soils on labour, and investments in cattle, wells, and equipment. As Baker writes, 'To come to terms with this tract, farmers had to commit themselves to an expensive, and necessarily intensive, style of cultivation' (Baker 1984a, 201). Put simply, in order to harness nature's wealth in Kongunadu, cultivators required a regime involving investments in technology and expenditure on labour, as well as labour control strategies. Furthermore, the specific requirements of appropriating nature in the form of black soils requiring high levels of work to be rendered arable, and red soils requiring systems of irrigation, necessitated high levels of labour, and led to a necessarily stringent 'labour control regime' (see Jonas 1996; c.f. Pattenden 2016b). Cultivators used tied arrangements with 'pannai-aal' or permanent farm servants, as well as hired labourers that were paid in-kind (Baker 1984a; Cederlöf 1997; Chari 2004). Labour came from both the Gounder community itself and non-Gounder communities, notably Madharis – a leather-working Dalit community, that constructed the kavalai bags used to draw water from wells (Cederlöf 1997; Chari 2004). Whilst Baker's account of 19th century farming in Kongunadu focuses less on the issue of tied/hired labour, painting labour relations as relatively familial (1984a, 209), Cederlöf has argued that Madharis in particular played a crucial role in enabling cultivation to take place through their labour on Gounder thottams, and that Gounders employed caste-based forms of labour control to extract surplus value through a combination of cash loans and pay in-kind, rendering Madhari labourers tied to thottams (Cederlöf 1997; see also

[49] The kavalai system involves draught cattle both lowering down and drawing up large leather bags through a wooden pulley system into open wells to collect water (Cederlöf 1997). The work is laborious and relentless, cattle had to repeat the task two times each day, and the kavalai also relied on the skilled labour of the Madhari caste, a leather-working community employed by farmers to treat animal hides and make the kavalai bags that held water (Cederlöf 1997).

Chari 2004, 152–53). Gounder cultivator household members also undertook high levels of work on their own thottams, contrasting valley Brahimins that relied more on hired-in labour (Baker 1984a). Thus in seeking to mitigate the difficulties of subordinating nature to agricultural production, Gounder farmers deployed strategies of labour control and household labour, highlighting the articulation between strategies of labour and nature 'control' (Baglioni and Campling 2017, 2446) in seeking to forge agrarian production in this tract.

Over the course of the 19th century, Kongunadu agriculture slowly grew in terms of scale and commercialisation. The evidence of this growth came in the refashioning of nature. Nicholson (2011) noted as late as the 1840s that the southern part of the region was still covered in dense, virgin teak forests, however by 1887, the teak forest had all but disappeared across southern Kongunadu, to be replaced by plains-style agrarian landholdings and roads. The main reason for this was railways, introduced to the region in the 1880s and attracting migrant populations to 'fort-market' settlements in the area, where commercial markets thrived through migrant caste communities – Devanga Chettis from Karnataka and Naidus from Andhra Pradesh – that acted as 'commercial intermediaries' (Chari 2004, 147). Railways also enabled goods, particularly cotton, to be transported to the port cities of Beypore in the west and Madras in the east for further trade (Mahadevan and Vijayabaskar 2014). Around this time, the number of irrigated thottams in the region grew dramatically, with 20,000 at the start of the 19th century (Buchanan 1807), rising to 35,411 in 1854, and further to 64,985 by 1880 (Nicholson 2011, 394), constituting 'roughly one per cultivator' in 1880 (Baker 1984a, 202). Kongunadu was also noted for its thriving cattle markets, required for the kavalai system of drawing water from wells, for the leather bags that kavalai required, for draught power; and for milk, meat, and manure (Baker 1984a; Chari 2004; Nicholson 2011). The availability of land in the region meant that farmers could graze cattle easily, and large-scale breeders of prized local varieties soon emerged, with cattle fetching high prices by the start of the 20th century, but also offering good returns 'if they were inserted into a suitably intensive scheme of production' (Baker 1984a, 204). Thus cultivators were able to recoup initial investments in cattle by exploiting them subsequently in order to continue appropriating nature's wealth.

Despite the expansion of agricultural production and irrigation however, by the end of the 19th century, Kongunadu remained 'semi-subsistence', with farmers continuing to cultivate dry grains, and using cash-crop profits 'to pay the revenue and the high capital-costs of farming in this tract', also 'partly to provide insurance against perverse fluctuations of price and demand on any single product' (Baker 1984a, 204). Thus 'there had evolved a society of small owner-cultivators largely oriented to farming for survival yet necessarily doing this at a higher level of capitalization than

was usual in southern India, and with a limited but important orientation to the market' (Baker 1984a, 205). Therefore, even 'farming for survival' in this tract involved capital investments in irrigation technology and cattle, or capital expenditure on wage labour, depending on soil variety, enabling significant appropriation of nature in the form of water and soil wealth. Thus, in a way, even thottams that largely undertook 'peasant' cultivation were shown to refashion and subordinate the environment to the compulsion of production needs. Ultimately, the picture of agrarian change in 19th century Kongunadu is of flexible farmers that deployed an arsenal of technologies and labour control strategies to enable production in a difficult tract. These farmers sought to appropriate (and arguably 'domesticate') nature through investments in agro-technology and infrastructure, and through stringent labour control and household labour. Crucially, nature is shown here to be more than the context within which agriculture takes place. Rather agrarian production is shown to develop in part as a set of strategies to harness nature's wealth in this specific tract.

3. 20th century: caste and accumulation

The start of 20th century witnessed the introduction of 'Cambodia cotton' into Kongunadu, and this is widely understood to have accelerated a rapid process of agrarian commercialisation and the development of industrial capitalism (Chari 2004; Mahadevan and Vijayabaskar 2014). The crop flourished when grown under irrigation in red soils, thus it suited the proliferating thottams in the region (Baker 1984a; Chari 2004). It also found a ready market in both Madras and Bombay, attracting further European trading firms into Tiruppur such as Binnys and Volkarts, as well as among the expanding local cotton ginning and handloom industries in Coimbatore and Tiruppur, the latter going back at least a century to when Buchanan visited the region (Mahadevan and Vijayabaskar 2014). Vast numbers of Kongunadu farmers shifted from primarily cultivating coarse cereals to cotton (Chari 2004), thus by 1941, cotton accounted for 18.3% of cropped area in Coimbatore, up from 11% in 1911 (Mahadevan and Vijayabaskar 2014, 8). The region as a whole also began to increasingly shift from food to non-food crops in these early decades of the 20th century, with the percentage of Coimbatore's cultivated area under non-food crops rising from 20% in 1911 to 33% in 1941 (Mahadevan and Vijayabaskar 2014, 8). Harriss-White writes that by the time of Independence in 1947, 'Coimbatore's agriculture was much more commercialised (in terms of value of sales per unit of land) than anywhere else in Tamil Nadu'[50] (1996, 65). Chari

[50] Harriss-White puts this down to 'its location vis-à-vis centres of demand, its infrastructure, its agrarian structure and agro-ecology', thus her account does highlight ecological context to some extent (Harriss-White 1996, 65).

further suggests that in shifting to a more commercially-oriented form of production, Kongunadu farmers 'intensified farming rather than expanding incomes by cutting costs and wages' (2004, 151), therefore increased exploitation and appropriation characterised the region's production. In looking to who was able to accumulate in this period of change, it is clear that caste played a key role. In fact arguably, caste success was largely a question of political economy, a point illustrated below.

3.1 Gounders and Naidus

The dominant caste group in Kongunadu were, and still are, the Kongu-vellala Gounders. They are an agrarian caste that are thought to have originated from a combination of Chola warrior-settlers from the Kaveri valley area, and the pre-existing agrarian[51] inhabitants of the Kongunadu region (Baker 1984a, 93–94). The combined community became dominant in the region, and according to Baker, they were characterised by a hybrid social structure, adopting 'Brahmanical customs and social pretensions', whilst maintaining a 'social structure based on patrilineage and a hierarchy of supra-lineage political chiefs' who traced their status back to military successes and titles conferred as a result of this, thus paying heed to their 'history as warriors' (Baker 1984a, 94). Baker suggests that this afforded the *Gounders* a unique form of caste hegemony that included the religious elitism of Brahmins, without any of the isolationism and tactile discrimination that they practiced towards non-Brahminnical castes. Gounders worked and lived alongside 'lower' caste groups in agrarian settings (Baker 1984a). Most crucially, Gounder dominance was cemented and arguably forged through material power in the form of landownership. Gounders also maintained a strong presence in local political structures, namely the diarchic political system of the Madras Presidency, thus strengthening their political base within state structures (Baker 1984b).

The other caste of note (in terms of agrarian accumulation) are the Naidus. Whilst numerically far smaller than the Gounders, Naidus at the start of the 20th century occupied dominant positions as large-scale mirasidars – landowners of hereditary plots in Kongunadu (Damodaran 2008). The Naidus were a Telugu-speaking community that had originally migrated from Andhra Pradesh centuries prior, and had settled in the region as large-scale landowners, also known for their investment-led and technologically-progressive form of agriculture (Damodaran 2008). They are noted here for their particular role in facilitating the expansion of industrial capitalism in the region, as outlined in the next section.

[51] 'Vellala' means 'peasant cultivator'.

In seeking to understand the basis of caste power, Guha (2013) has contested dominant narratives of caste as a largely ideological or cultural system of hierarchy. He suggests instead that caste was forged through material bases of power, politicised notions of ethnic ranking, meshed with a pre-existing system of guilds, strengthened by kinship and marriage practices, and then mixed with notions of purity and cleanliness to afford its 'religious character' (Guha 2013, 2). Guha thus argues that caste across India, and in fact South Asia more broadly, cannot be understood as being organised around a unitary rationale, rather it is a complex system shaped by various strands, which ultimately tie together at centre point. Yet within such analysis, the material or political economy basis for caste power cements the structure as a whole. In addition to this, drawing on the work of Srinivas (1969), Guha argues that caste power was formed and reproduced at a regional level, thus highlighting the way caste identity is spatially bounded and forged (see also Harriss-White 2017). Guha (1999) additionally draws light to the ways in which caste identity, referring to particular characteristics associated different caste communities, are often discursively engendered and reproduced by those in power seeking to identify and bound caste.

Stokes' earlier work (1978) on the Jat caste in northern India has highlighted this phenomenon. Jats are continually essentialised as 'industrious' in comparison with Brahmins who are deemed 'indifferent cultivators' (Stokes 1978, 234). Yet as Stokes suggests, and reflecting the thesis put forward by Guha also, these narratives emerge in large part from the specific political economy of Jat agriculture, where difficult soils render them hardworking, and thus their caste identity is borne in large part from their propensity towards the cultivation of difficult lands – a narrative of political economy rather than caste identity. In short, in this case, it is clear how caste appears as both a manifestation and a key constitutive element of material relations of power. Chari (2004) analyses how, for instance, Gounder self-representation of their success as based on hard-work and toil conceals the exploitative and hierarchical features of their farming and manufacturing systems, based on strict labour control facilitated by caste solidarities. By the same token, and focusing on ecology, I would further argue that Gounder farmers' success has also been cemented through the appropriation of nature's wealth as well as the extraction of surplus value from labour and that the two are articulated.

3.2 Caste and class upward mobility

Following a growth in the cultivation and processing of Cambodia cotton in Kongunadu, and the entry of capital from Bombay into the local market, the Naidu community began to invest in local cotton mills from the 1920s onwards (Mahadevan and Vijayabaskar 2014). This coincided with a worldwide depression in the 1920s, which hit agricultural commodity prices and cheapened the

costs of purchasing European-manufactured mill machinery, enabling Kongunadu agro-commercial capital to enter into Kongunadu cotton industries (Chari 2004; Damodaran 2008). Credit was also provided by the entry of Nattukkotai Chettiars, a Tamil Nadu moneylending caste that had made their fortune previously through lending to plantation owners in South and South East Asia (Chari 2004). Similar creditor caste groups from North India – Multanis and Marwaris – also came to Coimbatore and Tiruppur to lend to cotton merchants, enabling producers to move into industry with the backing of substantial capital (Chari 2004).

However as Mahadevan and Vijayabaskar argue (2014), the investments into industry by Kongunadu Naidus was unique given that in similar economic shifts across India, such investments were traditionally made by mercantile castes. Whilst credit came from such castes in this case, the investments were made by agrarian caste groups themselves. Thus the fact that the same agriculturalists that cultivated cotton had begun to invest in mill enterprises meant that they 'were able to effectively eliminate middlemen traders from this line of business', and to learn more about the inner-workings of the mill business, as a precursor to actually joining it (Mahadevan and Vijayabaskar 2014, 10). Gounder investments in the cotton industry in the 1930s and 1940s were minimal in comparison to the Naidu community, they primarily invested in non-Naidu mills, which is '…possibly suggestive of latent fissures between the upper echelons of these two community groups, vis-à-vis industrial and market control' (Mahadevan and Vijayabaskar 2014, 13). The other groups of note were Devanga Chettis and Sengunthars, the former an agrarian/ weaving caste and the latter a weaving caste, both retained investments in the longer-standing handloom industry in Coimbatore and Tiruppur, and, along with Muslim traders and Naidus, began to invest in the burgeoning knitwear industry that grew in Tiruppur from the 1930s onwards (Chari 2004; Mahadevan and Vijayabaskar 2014).

Gounders remained a largely agrarian community throughout the first half of the 20th century, and Gounder capital did not become prominent in Tiruppur until the late 1960s, when knitwear, now primarily hosiery, production went from characteristically composite units which comprised all productive activities[52] under one roof, to more fragmented units with a single activity in each (Mahadevan and Vijayabaskar 2014; Damodaran 2008). This fragmentation allowed Gounders entry into the market due to the lower levels of investment required to set up such fragmented units as opposed to earlier, composite ones. Chari has documented their subsequent success in in driving Tiruppur forward during the 1970s and 1980s, and has highlighted the fact that these Gounders largely came from classes of small peasant cultivators rather than capitalist farmers

[52] Refers to 'knitting, processing and garment-making' (Mahadevan and Vijayabaskar 2014, 24).

(2004). Chari has argued that this Gounder upward class mobility was driven in part through intra-caste, fraternal accumulation strategies, and caste and gender-based forms of labour control that Gounders initially practiced on their thottams, and later renovated onto industrial work units (2004). However, this narrative does not link caste dominance to the specific characteristics of agro-ecological capitalism identified previously in this chapter. For example, both Baker and Chari clearly show how Gounders were able to exploit labour in order to accumulate, but not how their appropriation of water played an important role as well, and how in fact these two processes are related to one another.

Therefore, in exploring who dominated Kongunadu agriculture in the early 20th century together with the arguments set out in the previous section around the specific form of agrarian production that prevailed in the region, I suggest that caste in this case acts as a material structure of power, incorporating internalised hierarchies of authority over other castes to enable exploitation of labour and environment. Alongside this, I would suggest that there are socially-forged variations across caste communities with regards to how profits are invested and spent. In this vein, the characteristic of frugality that is so often attributed to the Gounder community can be understood as a socialised habit as well as the outcome of power relations, though the role it played in enabling success is not at all clear. This narrative is developed more fully below.

3.2.1 Labour control

As outlined previously, Kongunadu required a labour-intensive style of agriculture in order to plough the thick, black soils which characterised much of the tract. The region's agro-ecological traits meant that the socially-necessary labour time for undertaking agriculture and appropriating soil wealth was particularly high. As such, expanding agrarian capitalism was reliant upon access to hired-in labour as well as the use of family labour, and agriculture needed to enable sufficient remuneration to enable cultivators to continually purchase wage labour. The region's agro-ecology thus lent itself to a labour-intensive regime, which in turn necessitated commercially-oriented farming. However the early 20th century also represented a period of industrialisation and labour absorption in the region, rendering rural labour relatively depleted, as Cederlöf writes, 'labour became a resource to be guarded' (1997, 91). Gounders therefore undertook caste and gender-based forms of labour control to both retain and exploit labour, through in-kind payments, tied labour arrangements, and unpaid reproductive labour.

Baker offers a clear picture of how Gounders drew on caste structure to maintain control over labour in this period (Baker 1984a). Landless labour came largely from non-Gounder, lower caste

groups, primarily Madharis and Paraiyars[53] (Cederlöf 1997). As Baker writes, 'Clan organization [among the Gounder community] reflected (or was made to reflect) the distribution of land within the locality; lineage and clan leaders had their ritual powers substantiated with material difference, and retained a considerable social and judicial role' (1984a, 205) thus caste mediated access to means of production and structured forms of ritual and state power. Yet Baker also suggests that unlike Brahmin landowners in the Tamil Nadu valley region who practiced a particularly demonstrative and tactile form of caste-based discrimination, Gounders did not practice such an overt form of caste exclusion when it came to hired agricultural labourers (Baker 1984a). This interpretation has been contested by Cederlöf in particular, who argues that the relationship between Gounders and the main non-Gounder caste community, the leather-working Madharis is largely missing from Baker's account.

Cederlöf (1997) shows in her study of labour relations from 1900-1970 in Kongunadu that prior to the late 1950s, when shifts in irrigation technology reduced farmers' need for leather workers, Gounders relied on the exploitation of Madhari labourers for both their work on thottams, and their skills in constructing the leather bags that were used for the kavalai system of drawing water from wells. Madharis worked both as pannai-aal (permanent farm servants), largely required for regular leather work given that kavalai bags had an average duration of six months and this had to be continually re-made, and as seasonal hired labour. Baker describes the pannai-aal position as follows (Baker 1984a, 209):

> *'These were attached labourers, sometimes indebted to the landlord… They were more like an extension of family labour… The permanent farm servants were often lodged in the cultivator's house and fed with the cultivator and his family. Their pay, moreover, was not unlike a family share of the proceeds of cultivation. They were generally paid a regular dole of grain, but for labour specifically on the cash-crops they were likely to be paid in cash, or in a portion of the produce which they could dispose of at will.'*

This rendition thus suggests a familial relationship between farmer and labourer, where levels of exploitation were akin to those within the family, and payment-in-kind therefore represents a kinship relation rather than an exploitative one. Cederlöf (1997) has contradicted Baker's

[53] Cederlöf (1997) has argued that both Madharis and Paraiyars constituted the agricultural labour forces of early 20th Coimbatore, which was at the heart of the Kongunadu region. I focus on this section on Madharis because whilst both communities constituted a general casual workforce in the region, Madharis were also essential as permanent farm servants or pannai-aal due to their particular skills as leatherworkers, and thus a focus on them allows me to analyse both non-Gounder casual labour and pannai-aal.

interpretation however, showing that Madhari labourers, both permanent and seasonal, were forced to take payment-in-kind, through a discourse of urimai, or a right to a share of the farmer's produce. This discourse was entirely built on maintaining the Madhari caste's subordinate role within the agrarian division of labour, with other rights including the right to work with animal carcasses. As Cederlöf writes, urimai can be 'understood as an expression of the local, economic power relations, as it implied control, or lack of control, over economic resources, and provided forms for regulating and maintaining the power relations between owner and labourer', as well as implying social and religious rites and duties (1997, 76). Thus enforced through urimai, in-kind payments were given to Madhari labourers in the form of grain, liquor, or even a voucher for a local bar, and labourers reported fearing conflict if they refused the form of payment accorded to them (Cederlöf 1997, 65).

Madhari pannai-aal are also shown to be employed through tied labour arrangements, where male heads of labourer households are given cash advances (Cederlöf 1997, 51), or in the case of devasam payments, a child from a labouring household was mortgaged to a Gounder farmer for one year or more, with either a cash advance given to the child's parents, or simply food given to the child each day (1997, 64). In such cases, because advances were in cash but payments were in-kind, labouring households had little chance to repay such advances and were therefore tied to farming households. Cederlöf (1997) suggests that this was undertaken largely to ensure that labourers remained tied to thottams in a period of industrial labour absorption, and enabled accumulation by Gounder farmers in many cases. Cederlöf's thesis contradicts the idea put forward in orthodox Marxian theory that the capitalist mode of production is defined in part by labour's freedom from owning the means of production and thus selling its labour power *freely* – the so-called double freedom of wage labour (see Lerche 2007 for full explanation). A number of Marxist thinkers suggest that capitalism only exists when labour is doubly-free (for example see Rao 1999). However, Banaji (2003) has contradicted this position. He suggests that seemingly unfree forms of labour control such as bonded labour and sharecropping under capitalist accumulation are better understood as part of 'a *multiplicity* of forms of exploitation *based on* wage-labour' (2003, 82; emphasis in original), the emphasis therefore being on unfree labour as a means of extracting surplus value rather than as a form of class struggle. This interpretation rests upon the argument that even contracted wage labour is never free, given the power differential inherent in the capital—labour relation, thus the concepts of free and unfree labour need to be revised to be understood as 'the subsumption of labour into capital in ways where the 'sale' of labour-power for wages is mediated and possibly disguised in more complex arrangements' (Banaji 2003, 83). Drawing on field findings in eastern India, Lerche (2007, 443) similarly suggests that both unfree

and free labour relations need to understood as part of a broader 'continuum' of labour relations, rather than through a binary lens. Thus in drawing on such insights to understand the case at hand, Cederlöf can be seen to highlight how Gounder farmers were able to exploit non-Gounder caste groups, particularly Madharis, through the use of unfree labour relations such as tied and bonded labour, as a means of restricting their mobility in a period of labour absorption by nearby industry. Gounder farmers thus used caste-based material divisions of labour, enforced through a discourse of urimai, to benefit from cheap labour in order to facilitate agrarian accumulation.

Gounders also drew on intra-caste class structures as a means of exploiting labour. Poorer Gounders undertook seasonal labour on other thottams to supplement their income, and landless Gounders were also employed as pannai-aal. Chari examines the primary village-level data from the 1930s which formed the basis for Baker's observations, and contrary to the 'utopian rendition of familial labour relations' put forward, he suggests that 'these familial workers neither had the security of contractual relations nor customary rights', thus rendering them beholden to richer Gounders without the freedom of contractual wages despite the fact they were not tied as Madharis were (2004, 154–55). As Kapadia has shown in her research on bonded labour in the gemstone industry in Tamil Nadu, intra-caste ties do not necessarily act as a means of preventing exploitation, rather caste and kinship ties between different classes can in fact enable exploitation, as capital employs a discourse of intra-caste loyalty and gratitude to justify debt bondage (Kapadia 1995b). It is therefore important to note here that the Gounder community were neither a unitary class nor caste. Rather there were both intra-caste and intra-caste differences among Gounders, and caste and class relations – as well as narratives of toil and solidarities – were systematically deployed to enable the extraction of surplus value from poorer Gounders.

Gounder labour control was also gendered in nature. Within Gounder producer households, Chari writes of the matriarchal 'Goundachi-amma, the mother of the Gounder farm household', who undertook agricultural labour, both subsistence crops and tending to cash crops, reproductive labour, as well as managing household budgeting, thus earning the reputation of a matriarch of sorts, which Chari argues endures among Gounder self-perceptions today (2004, 156). Chari's account highlights the burden of unpaid reproductive labour alongside waged labour placed on women in Gounder households (see Bakker, 2007, Federici, 2012). Chari further argues that in the case of Gounder pannai-aal, the families of these farm servants provided Gounder farmers with 'a captive sphere of casual labour'; '[b]etween "customary" and "free" labour, in effect, women and children formed a gendered reserve army of labour' (Chari 2004, 155). The same is true for Madhari pannai-aal, Cederlöf (1997, 50) notes that these permanent farm servants were always male, household heads, thus whilst their wives and elder children would have also undertaken labour on

the farms on which the male pannai-aal was employed, they would not have been counted, except perhaps as 'casual labourers'. This invisibility from documentation, also noted by Kadapdia (1995a) in her later study of Scheduled caste female labourers in southern Tamil Nadu, betrays women's inability to gain the same wage relationships as men, thus highlighting the fact that their labour is appropriated, both in terms of their casual labour on thottams, and their reproductive labour within the household. Gendered labour control was thus inter and intra-caste, and intra-household, thus male Gounder farmers and pannai-aal profited from free labour from women (and children) within their own community and from outside.

Finally, Gounder farmers of all classes also undertook work on their own thottams unlike nearby valley Brahmins (Baker 1984b). Gounders are reported to have 'stayed out in the fields during cotton season', taking it in turns with hired labour to watch the crop, and to have undertaken a similarly micro-managerial form of overseeing in Tiruppur industrial units decades later (Chari 2004, 156). This form of labour thus constitutes both self-exploitation and labour control over hired labour.

Gounders undertook both intra-caste and inter-caste-based forms of labour control, built on discourses of kinship and subordination, and gendered in nature. These labour practices came in order to accumulate/ subsist through Kongunadu's agro-ecology, where black soils required extensive labour, red soils required leather workers to enable sufficient irrigation, and the intensity of production regimes by the early 20th century meant that thottams in general required high levels of seasonal labour, in the face of decreasing numbers of rural labourers. Thus one could argue that the local labour control regime (see Jonas, 1996) was affected by the region's ecology. The antagonisms of appropriating nature's wealth are coupled with the antagonisms of exploiting labour, thus labour control acts as a means of dominating both labour and nature.

Further, the existence of non-waged labour relations does not preclude the development of capitalism in Kongunadu's agriculture. As highlighted by Kapadia (writing specifically about unfree female labour elsewhere in Tamil Nadu), 'capitalist business always seeks to control the worker and make her unfree' (Kapadia 1995b, 448). Thus Gounder labour control was structured along the lines of class, caste and gender, which enabled Gounders to ascend within a capitalist hierarchy and sustain year-round agriculture required to generate profits through the soils of Kongunadu. The next section looks at Gounder appropriation of soil wealth through the appropriation of water.

3.2.2 Irrigation

As outlined previously, Kongunadu's red soils, in which the flourishing Cambodia cotton strain was cultivated, required high levels of irrigation to render them cultivable. As such, thottam farmers shifting towards a more commercially-oriented form of production in the early 20th century relied upon the appropriation of water to extract the wealth of red soils. Kongunadu, from as far back as the medieval era, was characterised by well irrigation (Buchanan 1807), and due to the region's geological profile of hard, gneissic rock and a deep water table, well-irrigation required investments in the form of masonry and engineering to cut through rock, and then skilled labour in the form of leather-work, cattle energy, and labour overseers to enable the kavalai system to draw water from wells (Cederlöf 1997). Wells also required continual maintenance, thus investments were ongoing (Baker 1984a).

Of these, the kavalai system represented the main expenditure – farmers required the sustained labour of cattle[54] and Madhari leather workers to enable water to be continually extracted from wells once they had been constructed (Cederlöf 1997). The successful appropriation of water was therefore reliant on keeping the costs of cattle and labour low. With the latter, this was achieved in large part through the forms of labour control outlined in the previous section. With the former however, the continual increase in well irrigation in the Coimbatore region drove the price of cattle up considerably. The area of well-irrigated land in Coimbatore district rose from 270,571 acres in 1891 to 366,443 acres by 1931 (Baker 1984a, 478). In roughly the same period, the price of a pair of plough bullocks[55] went from Rs.100 in 1900 to Rs.600 by 1930 (Baker 1984a, 208). The rising cost of cattle thus represented a significant investment for farmers in the region looking to irrigate crops.

Once bored however, a well could provide irrigation throughout the year, therefore profits from 'year-round farming' enabled producers to recoup investments and expenditure in irrigation (Chari 2004, 150). Nicholson highlights this in his account of Kongunadu (2011, 391)*;*

> *'Every officer, from Macleod onwards, has added his testimony to the vital importance of wells in this districts enabling the ryot to grow "two certain crops instead of one precarious one, which is all he can expect when he depends upon the falling rain for his cultivation" in a district "where a failure in the rain is a misfortune of frequent occurrence" (J. Sullivan, 1828)*

[54] Cattle were also used for milk, meat, and manure (Baker 1984a; Cederlöf 1997), thus the appropriation of their work/energy went beyond the kavalai alone.

[55] These were the type of bullock used to operate the kavalai (Cederlöf 1997)

The implication is that wells offer risk-aversion against the climatic vagaries of the region, which are more pronounced in terms of erratic rainfall than other parts of the state (Baker 1984a), whilst also enabling increased production across a given time. Wells therefore represent a means of overcoming the indeterminacy of nature, understood in this instance as the irregular access to surface water and rainwater, part of 'a permanent struggle to standardise, control and simplify nature' (Baglioni and Campling 2017, 2446–47).

However wells only enabled appropriation if the costs of both constructing wells and extracting water remained low enough to enable producers to recoup such expenditure through commodity production. Therefore, the rise in cattle prices mentioned previously from 1900 to 1930, representing a 600% increase, hit farmers hard, with prices rising again during the war years to Rs.1,000 by 1945 (Cederlöf 1997, 121). Respite for rising prices came from an unlikely source – a water power-plant project in Pykhara in the Nilgiri hills which was largely intended to provide hydroelectricity for railways in Madras (Cederlöf 1997, 118–20). The project faced difficulties in finding sufficient users given the amount of electricity that would be generated. The state therefore focussed both on mill owners in Coimbatore and Tiruppur, providing loans to enable them to update equipment and thus facilitate electrification, and on small farmers in this region, pushing them towards replacing the kavalai with electric pump sets. Farmers were encouraged to switch in part on the basis of increased efficiency with electric pump sets – as Cederlöf writes (1997, 120);

> *'According to a bulletin issued by the Department of Industries in the Madras Presidency, a manually worked kavalai could lift 2,000 gallons or 9,029 litres per hour, while a small pump of one and a half horsepower could life 3,000 gallons or 13,638 litres per hour.'*

Pump sets thus represented a further means of overcoming the 'indeterminacy' of nature, understood here as the irregular access to surface water and rainwater against which groundwater offered a more secure means of appropriation (Baglioni and Campling 2017). Crucially, they also had the effect of reducing capital's reliance on labour, particularly Madhari leather workers. Cederlöf (1997, 123–24) writes that given the lack of requirement for their role as leather workers with the demise of kavalai, Madharis lost their urimai or customary rights which were based largely on the requirements of their specialised skills as leather workers, and were instead considered to be just general labourers. As such, pump sets enabled farmers to address the articulated indeterminacies of labour and nature control, through appropriating nature's wealth without recourse to labour control. Pump sets began to be installed from the early 1930s, but they only really began to flourish in a big way from the late 1940s onwards, and by the late 1950s they were well-established across Kongunadu.

The trend of private well expansion concurrently continued into the post-colonial era, with 54.3% of all irrigated land in Coimbatore under wells by the end of the 1950s. The state also offered increased support for private well investments under the Five Year Plan (Baglia 1966, 269), and it continued to extend rural electrification from Pykhara, with government officers undertaking demonstrations and talks to convince farmers of the pump set's superiority against the kavalai (Cederlöf 1997, 121–22). The District Gazetteer from the 1950s praises the centrality of wells to Kongunadu's continued success (Baglia 1966, 268):

> *'It is [for]…well irrigation that the District is famous. From the early days wells have been the chief source of irrigation. Even during the Great Famine of 1877-78 the majority of them are stated to have held out and yielded splendid returns to their owners. One officer, Mr Clogstun, has observed that they are 'the chief mainstay of the revenue' another, Mr Stuart, has remarked that they are 'the chief mainstay of the ryot'; and a third Mr Thomas, has stated that they are 'the heart and life of the district'. In a district of scanty rainfall like Coimbatore it is no wonder that the wells are of incalculable value.'*

The point thus drawn out here again, particularly with the example of the Great Famine, is that wells enable cultivators to overcome the indeterminacies of surface water access, where issues such as poor rainfall and high temperatures can render lakes and rivers dry, and instead allow producers to access a more consistent supply of water. Kongunadu also comprised buoyant land markets at this time. Farmers with irrigated land were able to fetch high prices for both selling and leasing land, with the installation of well technology guaranteeing returns that were around 40 times the average revenue from the same land by the mid-1940s (Baker 1984a, 211). Kongunadu was reported to comprise the most active land markets in the Madras Presidency from the late 19th century onwards, and by the mid-1940s, a tenancy survey found that average leasing rates for thottam land in the region were the highest in Tamil Nadu (Baker 1984a, 210). The land market was in part a reflection of irrigation infrastructure in ensuring that such lands were continually irrigated, thus land prices reflected the purchase of fixed capital that enabled the continual appropriation of water, as well as the price of the land itself. The buoyancy of the market is also reflected in Gounders' ability to continually respond to changing risks and rewards. A key example of this is the use of money from land sales to purchase small industrial units in Tiruppur from the 1960s onwards once composite units started to fragment, and the vagaries of dryland farming rendered accumulation more difficult (Mahadevan and Vijayabaskar 2014, 27).

Yet the introduction of wells and pump sets, leading to an accelerating rate of appropriation of nature, had clear impacts upon Kongunadu's environment. Depleting groundwater levels were

noted as early as the 1920s in Kongunadu as cultivators reported having to deepen open wells to continue accessing groundwater (Baker 1984a). By the mid-1940s, a state-wide reduction in agricultural yields had also been linked in part to fertility depletion and erosion of Tamil Nadu soils, accelerating the subsequent usage of chemical fertilisers in the region[56] (Baker 1984a, 511–14). Thus during this period when technical fixes for the appropriation of water and soil were spreading fast, the stage was also set for ecological degradation through the expansion of such technologies designed to deplete nature more rapidly than the rate of recharge. Arguably, the region's 'metabolic rift' (Foster 2000) was beginning to reveal itself.

Ultimately, Gounders shifted from relying upon caste-based forms of labour control in order to operate the kavalai, to embracing new technologies in the form of pump sets, enabling them to continue to appropriate water. The next section examines Gounder accumulation through the issue of reinvestment of surplus from agrarian production, and the following section ties this together with the preceding analysis of labour control and water to analyse the role of caste more broadly in this period of accumulation.

3.3 Investments

The final issue of relevance is the specific way in which Gounders invested agrarian surplus in continued production and thus accumulated. The centrality of agricultural reinvestment and expansion is emphasised by much of the Marxist political economy literature concerned with identifying agrarian class structures, from the Indian 'Modes of Production' debate onwards (Patnaik 1990). Marx himself drew the distinction between the 'capitalist' and the 'miser' in Volume I of 'Capital', suggesting that the miser seeks to save in order to increase his own wealth, whilst the capitalist drives to continually expand his wealth by reinvesting and expanding production and exchange (Marx 1976).

This distinction certainly indicates the importance of investments in expanding production in any system of successful commodity production. In this vein, Gounder investment habits are certainly linked to their success. Nicholson writes that in the mid-19th century, agriculture in Kongunadu suffered from numerous issues, including but not limited to: the poverty of many producers and their concurrent inability to invest in agriculture, the poor development of industry in the region such that many crops faced scant markets, the difficulty of the region's lack of irrigation, the lack of large landowners that were able to invest in bringing up the quality of production, and a general

[56] This constitutes the start of the region's Green Revolution, as early as the late 1950s; explored in more detail in Chapter 5.

antipathy towards investing in productivity-raising measures, even amongst those that could (Nicholson 2011). Within this picture, Nicholson's praise for Gounders[57]as shrewd investors remains unflinching (2011, 182):

> *'The want for capital among poor labourer-ryots has been adverted to above, but a chief cause why valuable products are not grown, especially on wet lands, is the non-devotion of capital by reason of defective mental and social habits. When the cultivator is a Vellálan, a good deal of his capital does go to the land, as in digging a well, getting more cattle, etc.; but when it is owned by Brahmans and miscellaneous castes, land is apt to be looked upon as an object of mortgage, of which the product is spent in marriage and suchlike.'*

This description very much supports the interpretation of a characteristically frugal caste community. Gounders, it is argued, eschew the trappings of religion and ritual to invest instead in production, where other caste groups may see such trappings as central to their caste identity, or alternatively, lack sufficient funds to invest in agriculture or religion in the case of 'labourer-ryots'. Nicholson goes on to argue in a section characterising different castes; '[*Vellálans*] are truly the backbone of the district; it is these who by their industry and frugality create and develop wealth', cementing the notion that this caste group is characteristically sparse and hardworking in comparison to others, shaping its ability to accumulate and expand.

It is important to note here however Guha's thesis around colonial narratives of caste, which highlights their propensity towards 'reconstituting an order of things that was presumed to have existed at some time in the past' (1999, 182). Such narratives, Guha suggests, seek to invigorate a form of caste essentialism, which implicitly links reified caste identities to the caste-based division of labour thus arguably acting as an explicit form of advocacy for caste-based exploitation. Colonial caste essentialism can appear highly complimentary, as is evident in Stokes' work on Jats and their conceptualisation as 'industrious' (Stokes 1978, 234). Developing such critiques in the case of colonial representations of the Gounder community, it is clear that the difficult terrain of Kongunadu would render cultivation difficult for any caste group, thus it is Gounder dominance in such a region which sees them essentialised as hardworking. However it is also clear that there are material differences in caste organisation and practice, including 'fraternal accumulation' (Chari 2004) and less investment in religious ceremony and ritual, which may have had some impact on the success of Gounder accumulation. The key thing to stress here is that the precise impact of

[57] Referred to simply as Vellálars in his text, Nicholson clarifies 'the bulk of the Vellálar call themselves Goundans' (Nicholson 2011, 56).

Gounder-socialised frugality is difficult to assess, and should not be overstated. The repeated observation that '…a full purse will, in the Coimbatore Vellálan's hands, conquer the season and soil' (Nicholson 2011, 184) is thus born of both essentialised colonial discourses which seek to reinforce caste-based divisions of labour, and material differences in caste practices, however the impact of the latter is indeterminable.

3.4 Understanding Gounder success in Kongunadu's agro-ecology

The Gounder community's success in Kongunadu in rapidly commercialising agriculture in the first half of the 20th century, and their subsequent move into industry in Tiruppur from the 1970s onwards, is shown to be due to their complex labour control strategies and their ability to remain progressive in embracing new technologies to appropriate nature. It is also due to the fact that unlike in other parts of India, Kongunadu did not comprise a commercial intermediary class to siphon off surplus, instead it was agrarian Naidus and later Gounders themselves that formed the bulk of industrial commercial capital in Coimbatore and Tiruppur[58] (Mahadevan and Vijayabaskar 2014; Damodaran 2008). Finally, it is due in large part to the significant labour of Madharis, Paraiyars, and other caste groups that worked on Gounder thottams, and to the labour of women within Gounder and non-Gounder households. Caste is thus shown to shape people's relationship to means of production, to act as a social structure which collectivises accumulation and contributes to forming patterns of investment, and which also changes over time, notably in the case of Madharis losing their customary rights as leather workers, and Gounders and Naidus becoming industrialists.

In linking this with the analysis of Kongunadu's specific agro-ecology and the form of agrarian capitalism that this gave rise to, I would argue, drawing on the work of Guha (1999, 2013) and Stokes (1978) that the continual depiction of Gounders as hardworking and agriculturally intensive is in large part a description of the particular agro-ecological character of Kongunadu's agrarian production. For example, as late as 1939 and written by a Tamilian, albeit an elite Tamil Brahmin Botanist working for the state, descriptions such as this still sustain (Ayyar 1939, 120);

> *'If Coimbatore is what it is to-day, the credit really goes to the ryot[59] of the district, who is a fairly hard-working ryot and who spares no pains to make use of every cent of rainfall that is*

[58] Other caste groups included Muslims, Devanga Chettis and Kaikkoolars (Mahadevan and Vijayabaskar 2014).

[59] This refers to 'Tamil speaking Goundans, the Telugu speaking Kammas and Vadugas' and other castes (Ayyar 1939, 119), though Chari makes clear the Gounders were numerically dominant at the time of Ayyar's account (2004).

> *obtained. It is his sweat that has in no small measure contributed to the growth of this place. He is the bed-rock on whom the capitalists of this district, some of them mill-owners, have built up their mansions.'*

This poetic account metaphorically suggests that the 'ryot's' intrinsic qualities compensate for the region's specific ecological difficulties – his sweat in lieu of rainfall, and his position as a bedrock in lieu of easily accessible water. Chari's research (2004) in the 1ate 1990s also shows that in this period, when the Gounder community were ascendant in Tiruppur as industrialists and remained dominant in the surrounding countryside as farmers, they explained their own success through a discourse of 'toil' or ulaippu. Such a narrative internalises the colonial depictions of Gounders set out previously, and conceals the fact that the caste were ascendant in a region where even basic cultivation necessitated the appropriation of soil wealth through labour control strategies and investments in irrigation. Gounder ulaippu conceals the caste's appropriation of significant soil wealth and its appropriation of labour, thus 'undermining the original sources of all wealth—the soil and the worker' (Marx 1976, 638).

The caste identity of the industrious Gounder small farmer and industrialist therefore needs to be understood in light of political economy, which in turn is rooted in nature. Caste does not offer an explanation in its own right, nor do caste communities bear any essential qualities, rather they constitute socially-forged groups which take on a role in shaping material power; whilst also remaining fluid in being reconstituted through shifting power relations (see also Mosse 2018).

4. 19th century: tobacco in *Kongunadu*[60]

Having established the broader context of agrarian capitalism in Kongunadu, this final section examines how tobacco fits into this picture. In doing so, I suggest that tobacco greatly lent itself to the specific character of agricultural production in Kongunadu due to its short duration, high returns, and commercial viability.

Tobacco was flourishing across India from as early as the 17th century, as Gokhale writes (1974, 491);

> *'Bengal, Bihar, and Orissa, as well as northern and central India in general saw the growth of tobacco cultivation through the seventeenth century. A new crop had been introduced in traditional Indian agriculture and the peasant was not slow in benefiting from its cash value.*

[60] It should be noted that this 'history' refers only to Sun-cured tobacco. Jaffna-cured tobacco did not come to Tamil Nadu until the mid-1950s, and thus its particular history will be detailed at the start of Chapter 7.

> *By the end of the century the consumption of tobacco, either through smoking or chewing with the leaf of the betel vine (pan), had spread throughout the diverse strata of Indian society. Tobacco had become almost a necessity as much for the aristocrat as the poor man and this domestic demand stimulated production.'*

Tobacco was thus ubiquitous across many parts of the country, and across diverse social strata. In Kongunadu, tobacco was cultivated as early as the 18th century (Buchanan 1807; Nicholson 2011). In 1802, Buchanan noted its production among a minority of the 20,000 or so well-irrigated thottams that were present at this time (1807). He highlights in particular its popularity among specific regions and classes, for example in Dharapuram (in southern Kongunadu), it was the 'principal article cultivated' by farmers (Buchanan 1807, 315), whilst around Coimbatore town itself, it constituted the central crop in 'the most important [crop] rotation' among thottam farmers that had irrigation – a minority among producers in the region given the high rents for these lands (1807, 255). Thus the crop was differentially embedded within diverse local political economies across the region. As Baker and Harriss-White have argued, Kongunadu continued to primarily produce food crops for local markets until the latter decades of the 19th century (Baker 1984a; Harriss-White 1996). Tobacco thus represents one of the few cash crops that flourished in Kongunadu during the 18th and 19th centuries, along with sugarcane and cotton later in the 19th century. Baker writes (1984a, 206): 'Tobacco was particularly well-suited to the Kongunadu thottams; it was very expensive to grow and needed careful watering, but it gave a remarkably high monetary return per acre'. The picture that emerges is of a crop that carries some risk but offers significant potential for profits. Its ecological suitability[61] to the type of production that proliferated is also clear, it was a 90-day crop from seedling and 120-day crop from seed (Baglia 1966; Nicholson 2011), thus its thirst for water and labour was limited by its short duration, enabling it to be particularly well-suited to a region of water scarcity such as Kongunadu. Furthermore, it offered high returns at the point of exchange, enabling cultivation investments and expenditures to be more easily recouped. The crop therefore offered a viable means of accumulating through the specific relations of production in Kongunadu.

In terms of tobacco consumption, there is little systematic evidence because the vast majority of existing accounts of tobacco in the Madras Presidency focus on the areas around the Godavari river (located in modern-day Andhra Pradesh), where cigarette tobacco was being cultivated largely for export (for example see Royle 1840; Thurston 1913; Cox 2000). Yet this case is not applicable

[61] The specific character of tobacco cultivation – seasonality, irrigation, division of labour and so forth, will be discussed in detail in Chapter 6; drawing on primary data.

here, as Kongunadu-cultivated cigar, cheroot and chewing tobacco involved different plant varieties and more local commodity markets. Unlike Godaveri cigarette tobacco, which was forced to compete with tobacco grown in the USA and also other colonies for its place in the global export market (K. S. Reddy and Gupta 2004), chewing tobacco and cheroots had a strong home market, particularly among labouring castes in Malabar, where the cultivation of tobacco was not possible (Nicholson 2011, 175),

> *'In Malabar tobacco has immemorially been considered a necessary of life by ryots working throughout the day for months together on swampy, wet land, it being found in practice to be a preventative of fever and chills. But the climate not being suitable to the growth of tobacco a large import trade in the leaf was carried on with Coimbatore where it was grown with ease and in abundance'*

Nicholson's account from the 1880s offers clear evidence of a strong domestic demand for chewing tobacco in southern India, and highlights Kongunadu's regional specialisation with regards to production. The account goes on to highlight a number of different revenue-collection systems deployed by the Malabar and British governments between 1799 and 1845, in which period the colonial state tried to maintain a 'monopoly' over Kongunadu tobacco cultivated for consumption in Malabar (Nicholson 2011). The account highlights the failure of various revenue systems due to their vulnerabilities to corruption and high levels of inter-state smuggling, however the very existence of such a monopoly by the state signals the existence of a significant market for Kongunadu tobacco. As Gokhale writes of tobacco across India from the 17th century onwards, (1974, 491) 'The profits of tobacco farming were substantial both for the peasant who grew it and the government that collected taxes from it'. There is also evidence to suggest that members of the colonial administration in Madras favoured chewing tobacco and cheroot from this region, from the late 19th century well into the mid-20th century (K. S. Reddy and Gupta 2004; Muthiah 2014). As such, tobacco commodities found a significant market in the Madras Presidency and Malabar from the late 19th century.

Following the introduction of railways in the latter decades of the 19th century, commodity trade rapidly grew in Kongunadu, and specific towns in the region became associated with the trade of different commodities (Baker 1984a, 205). In the case of tobacco, this was Erode in the north of Kongunadu, and this enabled the town to develop a regional market niche for tobacco commodities such that the region became well-known for specific forms of chewing and cheroot tobacco. Baker writes that the increase in commodity trade led to a rapid rise in tobacco production in the region, 'The [tobacco] acreage doubled in the 1880s (from fifteen to thirty thousand acres)

and then fluctuated around the same level for the rest of the period [until the 1950s]' (1984a, 206). In addition to the influence of railways, the overall turn towards more commercially-oriented production in the early 20th century pushed farmers into deepening the appropriation of water and energy and therefore to seeking out crops that offered high returns, thus tobacco's success was also due to suitability to this changing picture. Tobacco was rarely a principal crop in 19th century Kongunadu, but it was one of the earlier cash crops to be cultivated in an era of mainly food crops, and remained resilient as the region shifted to more market-oriented agriculture in the latter part of the 19th century.

Kongunadu tobacco went into a range of different commodities and was consumed by a diverse constituency. Chewing tobacco and cheroots (a thinner version of the cigar) where the most popular commodities in the early 20th century, and cigars were close behind (Baker 1984a; Harriss-White 1996; Muthiah 2014). Writing in 'The Hindu' newspaper, Tamil Nadu historian S. Muthiah reports that towards the latter decades of the 19th century, cheroots in particular found favour with colonial officers stationed in South India (Muthiah 2014). They were hand-rolled at this time and to be found 'after dinner in the smoking rooms of the sahib's clubs' (Muthiah 2014). By the start of the 20th century, the majority of these cheroots were produced in Spencer's factories, initially in Tiruchirapalli (Trichy) – a town just south-east of the Kongunadu region, and later in Dindigul as well, a town at the southern end of Kongunadu (Muthiah 2014). Spencer's produced cheroots well into the 20th century for a growing market which counted Churchill as one its most famous consumers. In 1887, Muthiah writes that the owner of Spencer's – Eugene Oakshott – purchased 60 acres of land in Dindigul, which overlapped with the southern part of Kongunadu, and increased production there, as well as constructing a second factory. By 1910, Spencer's Dindigul factory 'developed into the country's biggest and best cigar factory' (Muthiah 2014). Baker further writes that in the 1920s, cheroot factories represented one of Madras city's largest industries in terms of workforce (Baker 1984b). Trichy cigars made it into the annals of literature, with mentions in a Sherlock Holmes novel, an Orwell novel and also a Kipling poem (Conan Doyle 2001; Orwell 1990; Kipling 1994, 460).

Tamil Nadu, specifically two fringe cities of Kongunadu – Dindigul and Tiruchirapalli – therefore became associated with a commodity specialisation in tobacco during the last few decades of the British colonial regime, and the crop remained favoured by Gounder producers under conditions of deepening agrarian capitalism through this era due to its remuneration and the burgeoning markets for tobacco commodities.

Figure 4.1: ***Area / Yield of Tobacco in Tamil Nadu, 1920-1951***

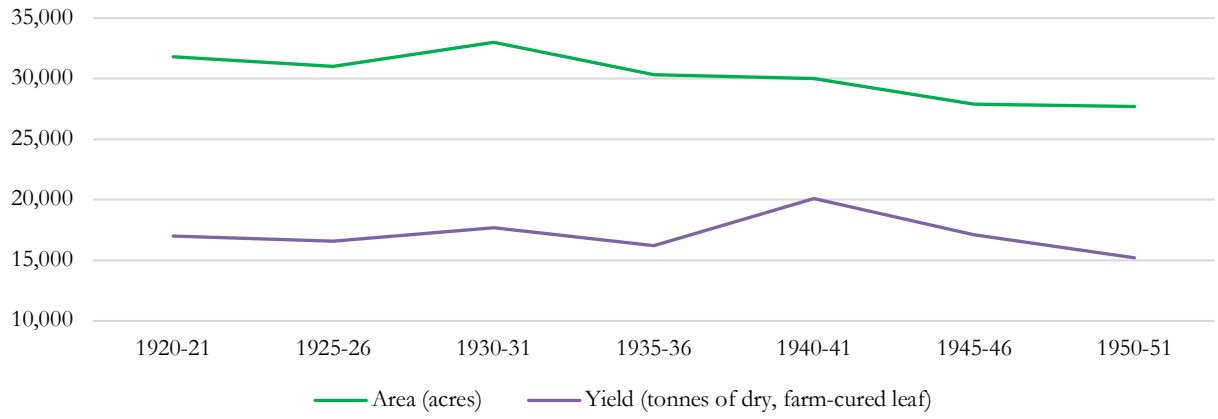


Figure 4.1, sourced from Baglia (1966)

However as shown in Figure 4.1, tobacco production generally declined under the later colonial and post-colonial states. In the post-colonial era, this was largely driven by the national government's focus on making India food self-sufficient through its first Five-Year Plan (1951-56) (Baglia 1966). This included specific yield and area targets for key food crops, and within this tobacco was given a minor increased area target, rising from 24,233 acres to 26,516 acres under the first Plan (Baglia 1966, 251). However despite this lack of state attention, tobacco increased again in the late 1950s due to broader productivity-raising measures. The second Five Year Plan included an increased productivity target for Tamil Nadu tobacco through an increased use of chemical manure, but no increased area target (Baglia 1966, 251). Despite this, the area under tobacco in Coimbatore district alone rose to 32,000 acres by 1956-57, and the yield to 17,700 tonnes. It is thus described as one of the 'most important' non-food crops in the region by the District Gazetteer in the late 1950s due to the remuneration it offered to cultivators (Baglia 1966, 228). The crop remained favourable within the context of agrarian commercialisation and state-sponsored agrarian intensification in the first half of the 20th century[62], its short-duration and marketability rendering it suitable to the increasingly market-centric agrarian capitalism of Kongunadu. This latter point will be explored more fully in the next chapter.

5. Conclusion

This chapter has argued that agrarian production and accumulation in Kongunadu have historically been affected by the region's ecology. Black soils required high levels of labour to render them workable, and red soils high levels of water. Yet gneissic rock, low rainfall and high temperatures

[62] The next chapter looks at how tobacco fared under the Green Revolution during the latter-half of the century.

meant that well irrigation was the only viable means of enabling cultivation in much of the region, forcing cultivators undertaking different levels and types of production into investing in irrigation. Farming in this tract has therefore always been reliant on relatively high levels of capital investments and expenditure on technologies and labour respectively. Moving to the 20th century and the full development of agrarian capitalism, I have shown how the well-known story of Gounder success in moving from small-scale cultivation to petty industry was shaped in large part by their exploitation of labour but also by their ability to appropriate nature at the same time, as well as by customs and habits of Gounders themselves, apt at intensifying production and labour processes. I have examined the role of other caste groups in the story of Gounder success, acting as industrial investors, creditors, and labourers, and how these relations are reshaped over time, pointing to the continually evolving nature of caste itself. I have also suggested that narratives of Gounder toil are linked to the particular difficulties of cultivation in the Kongunadu tract, thus highlighting the socio-ecological aspect of representations of caste identity. Finally, the chapter has outlined how tobacco fits into this broader picture, highlighting its trajectory in the region from a crop cultivated by a minority of thottam farmers to a resilient commodity that persisted as the region's agriculture became increasingly commercial. I have argued that this resilience is due in large part to tobacco's particular suitability to the type of agrarian relations of production that expanded in 20th century Kongunadu, an argument that will be further developed in subsequent chapters.

Overall, this chapter has shown the form of commodity production that has emerged in Kongunadu, characteristically requiring ongoing investments in irrigation technologies and stringent labour control to undertake any form of production. Commodity production also started to erode the sources of wealth that it relies upon, evident through reports of both the depletion and erosion of soils in the 1940s, and the deepening of the water table from the 1920s. Thus the particular type of agrarian production documented here both emerged in part as a response to the requirements of appropriating natural resource in the region, and has in turn reshaped the environment. The next chapter goes on to examine this process of ecological decline through the latter half of the 20th century and into the present day, as the Green Revolution intensified the rate at which farmers appropriated nature in order to accumulate and expand.

Chapter 5
Agrarian relations: the Green Revolution and the present era

1. Introduction

This chapter provides an overview of agrarian change in Kongunadu from the late 1950s to the present-day, focusing on two key moments in this period. Firstly, the introduction of state-sponsored agricultural intensification, which in the case of Kongunadu came as early as the late 1950s (Baker 1984a), under the auspices of the first Five Year Plan and later the Green Revolution. Secondly, the present-day, and the complex processes of agrarian change, and within this deagrarianisation, that are taking place in Kongunadu (Heyer 2000, 2016b) and India more broadly. In order to explore these issues, I also look at the trajectory of industrialisation in Kongunadu, given the deep interlinkages between this sector and agriculture, as established in the previous chapter, as well as the role of the state in shaping trajectories of change both directly and indirectly.

The chapter ultimately focuses on how agrarian accumulation in Kongunadu, as established in the previous chapter, is reshaped during periods of state-sponsored agricultural intensification and relative state retrenchment. The story of Green Revolution-led agricultural growth and subsequent decline is well-documented in the case of Tamil Nadu (Harriss-White and S. Janakarajan 1997; J. Harriss and Harriss-White 2007; Vijayabaskar 2010; Heyer 2016b) and also India (Patnaik 1990; Ramachandran 2011), and so I do not reiterate this narrative. Instead, this chapter aims to foreground the role of environmental change within such accounts, looking to how a specific type of capitalist trajectory emerged partly as a means of responding to and consequently appropriating the environment, how this reshaped the environment in turn, and the particular measures used in order to appropriate natural resources. Specifically, the chapter highlights how agrarian accumulation was partly being reshaped through shifting dynamics of appropriation, with increased capital investment required to appropriate water and soil wealth, and of exploitation, with gender and caste relations becoming less unequal and rendering labour control increasingly difficult. Finally, the chapter also highlights the trajectory of the region's tobacco production during the Green Revolution era, whilst the subsequent three chapters go on to examine tobacco in the current era.

The chapter is structured as follows, first, I examine the early turn to agricultural intensification in Tamil Nadu in the mid-20th century, the varied impacts this had in Kongunadu in particular, and drivers of such impacts, before turning to how tobacco fared in this period. I then jump to the present day to examine the contours of agrarian change in Kongunadu today, and go to look at the underlying forces behind this process and impacts of it at a broad-brush level. This chapter draws on secondary data and existing research on Tamil Nadu, but it provides context for understanding primary-level data in the next chapter, thus the arguments made here are largely developed as a response to insights from primary data. Furthermore, this and the previous chapter also offer the historical basis on which I will develop a broader set of research recommendations in the concluding chapter vis-à-vis agrarian change in Tamil Nadu, also in light of fieldwork findings.

2. An overview of agricultural intensification in Tamil Nadu

The process of state-sponsored agricultural intensification arrived in Tamil Nadu as early as 1951, with the implementation of the first Five-Year Plan (Kurien 1989), and arguably even earlier under the colonial government's 'Grow More Food' campaign, implemented from 1942 onwards (Baker 1984a, 500–3). Baker writes (1984, 500–5) that the colonial government in Madras took little interest in agriculture until its latter decades. This dramatically changed with the outbreak of World War II, when the government realised that it had to procure grain for British war efforts. It became increasingly interventionist, particularly after Indian agriculture markets were hit by the effects of inflation in the early 1940s, 'The British war effort in India was being financed for the most part by printing money' (Baker 1984a, 496). Following the outbreak of famine and distress across the country, most notably the famine in Bengal in 1943, the government decided to play a more active role in procuring grain and distributing it to the poorest sections of society.

Under the auspices of the 'Grow More Food' campaign from 1942, state intervention in the Madras Presidency was characterised by both intervention in food markets and food production (Baglia 1966). The former initially involved state purchase of grain, after 1946 this became compulsory requisitioning after 1945-1946 proved to be the worst-ever recorded season for production in the province (Baker 1984a, 501). Price controls continued well into the post-war years. Interventions in production included pressure for farmers to increase productivity through state-sponsored agricultural inputs – specifically manures, seeds, and iron and steel (for axels on country carts) – and increased mechanisation/irrigation infrastructure (Baker 1984a, 503–4).

The Madras government spent ₹5.5 crores on the 'Grow More Food' campaign, a sum that 'dwarfed governmental expenditure on agriculture in previous years' (Baker 1984a, 504), thus it

represented a significant intervention by the state. Yet as argued by Dr B. Viswanathan, Madras' new Director of Agriculture from 1945, these interventions were unlikely to be successful, given the lack of research on Madras' specific agro-ecology (B. Viswanath, cited in Baker 1984a, 505–6);

> *'We do not know the particular deficiencies of soils, the plant foods taken out by crops, plant foods supplied by manures and the responses of crops in increased yields. We are not yet in a position to say with any degree of certainty, the amount of manure or fertiliser or water that can be applied to a given crop in a given locality. This is so because the studies on soils and manures in relation to crop growth have been of an isolated character and lack coordination necessary for attaining greater fertiliser and manure efficiency in terms of crop yields.'*

B Viswanath was tasked with rapidly increasing Madras' food production from the late 1940s onwards, and he began with a programme of research into the region's agriculture and agro-ecology. He found that as well as a sustained deficit of grain production within the state, there appeared to be a more alarming trend of decline among major food and non-food crops over the past three decades, caused both by a decline in land under millet (transferred to cash crop production), and also by a decline in yields (Baker 1984a). The latter was driven in large part by the lack of soil management that had characterised agriculture across the Presidency through previous decades. In dryland areas such as Kongunadu, repeated cropping regimes had led to the erosion of top soils, whilst across the state, the lack of sufficient manure application had led to significant levels of mineral depletion (Baker 1984a, 513),

> *'…as long as the land was not used too intensively, careful rotation and frequent fallowing was probably enough to maintain the level of fertility [in soils]. Yet in the past century, the usage had become more constant, old rotations had been discarded in the quest for cash-crop profits, and new crops and new strains of seed which made heavier demands on the soil had come into use. At the same time, manurial practices appear to have remained unchanged, or if anything to have deteriorated.'*

In 1945, when asked to address these issues in the Madras Presidency and develop a programme to enable increased food production, the new Director of Agriculture, B. Viswanath, set out a programme which included (Baker 1984a, 516):

> *'…research on new strains of crop, their adaptability, drought-resistance, and yield; research on the use of water and manure to make optimum use of resources; research on pests and diseases; the establishment of machinery through which the state could supply coordinated*

packages of improved inputs (good seeds, requisite amounts of fertilizer and pesticide, advice on irrigation and cultivation practice) and the necessary finance'

This was ultimately the strategy of the Green Revolution, implemented by the Tamil Nadu state from the early 1950s onwards, and focused on ways of appropriating nature's wealth using subsidised technologies.

The region thus underwent a process of intensification far earlier than other parts of the country. Under the second Five-Year Plan which lasted from 1956/57 to 1960/61, strategies for agrarian intensification in Tamil Nadu deepened, with an increased focus on water and soil wealth – 2.3 million acres of land to be newly covered by either irrigation schemes, tube wells or pumping units, and 4.3 million acres of land to benefit from either ammonium sulphate fertiliser or urban compost (Baglia 1966, 250).

Yet following a period of growing yields and increased production during the late 1950s, the early 1960s saw stagnation and even decline in the drought year of 1965/66 (Kurien 1989, 47–48). In this context, the Intensive Agricultural District Programme (IADP), started in Tanjore in 1960/61, and was extended to Coimbatore and other districts from 1965/66, comprising a 'package deal' of fertilisers, improved seeds and plant protection methods, as well as state support in the form of credit provision, educational demonstrations and so forth (Kurien 1989, 48). The High-Yielding Varieties (HYV) Programme was also launched in 1966/67, this introduced high-yielding, drought-resistant seed varieties of paddy and millet initially and later other crops into the state. State price controls also continued during this period. Take-up of the new technologies was high, HYV paddy went from occupying 45% of the overall area under paddy cultivation in 1969/70 to 78% in 1973/74, for HYV millet the area went from 4% to 26% in the same period (Kurien 1989, 48). Yet as Kurien argues, the major period of productivity boom remained in the 1950s, as measures in the late 1960s, resulting in high productivity increases in two periods: 1968-1970 and 1974-1976, did not match the rates of productivity increase from the 1950s. Therefore, these post-HYV periods of growth can more accurately be understood as 'recovery growths', given the years of stagnation separating these from the boom years of the 1950s (Kurien 1989, 50).

Table 5.1: ***Percentage increase in productivity in major crops in Tamil Nadu from 1951/52 to 1975/76***

Crop	Paddy	Cholam[63]	Cumbu[64]	Ragi[65]	Groundnut	Sugarcane	Cotton
Percentage increase in productivity	83%	34%	51%	66%	17%	48%	79%

Table 5.1, sourced from Kurien (1989, 30)

Despite such decadal differences, the overall impact of agricultural intensification in the 1950s and 1960s enabled rising productivity across food and cash crops, as shown in Table 5.1. Yet this picture was notably uneven across Kongunadu. The rest of this section goes on to detail this more complex picture, before examining three factors affecting the region's uneven change – ecology, industrialisation, and the state.

2.1 Agrarian change in Kongunadu, 1950s-1980s

Looking now to Kongunadu specifically[66], the period of initial intensification presented a mixed picture.

Table 5.2: ***Changes in productivity of major crops in Coimbatore, 1930-1951***

Time periods	Paddy	Cholam	Cumbu	Ragi	Groundnut	Sugarcane	Cotton
1930/31 to 1940/41	1%	5%	-16%	0%	11%	4%	22%
1940/41 to 1950/51	14%	-45%	-41%	-20%	7%	88%	-15%

Table 5.2, sourced from Baglia (1966, 270)

As shown in Table 5.2, whilst paddy and groundnut experienced increased productivity across the 1930s and 1940s, other crops went into productivity decline. This speaks to what Dr B. Viswanathan found in the mid-1940s upon being tasked with expanding Tamil Nadu's food production (Baker 1984a, 500–503). The specific period of the Green Revolution (from the mid-1960s onwards) also presents a mixed picture in terms of productivity increases in the region; as highlighted in Table 5.3.

[63] Maize.

[64] Pearl millet.

[65] Finger millet.

[66] Post-Independence, the majority of the Kongunadu region came under the district of Coimbatore, with borderland regions within Salem and Madurai districts. In 1979, Coimbatore was bifurcated just north of Coimbatore/ Tiruppur towns to create 'Periyar district', now Erode district, and in 1985, 'Dindigul district' which constituted a borderland region of Kongunadu was carved from Madurai. Coimbatore was further bifurcated along a vertical line to create both 'Coimbatore' and 'Tiruppur' districts in 2009. Sections 2 and 3 of this chapter will therefore refer to data from Coimbatore district in discussing Kongunadu.

Table 5.3: ***Percentage change in productivity in major crops, Coimbatore District, 1961/62 to 1972/73***

Crop	Rice	Cholam	Cumbu	Ragi	Sugarcane[67]	Groundnut	Cotton
Percentage change in productivity (kg/hectare)	23%	-38%	-1%	13%	7%	-24%	67%

Table 5.3, sourced from Kurien (1989, 50–51 Table 3.15)

Whilst cotton underwent a major productivity boost in this period, the productivity of cholam, cumbu and groundnut was in decline. Thus neither the earlier nor the latter periods of agricultural intensification had uniform effects across the region.

This picture of mixed success is certainly not unique to this region, nor to this state – scholarship has debated the drivers behind this with focus on a number of different factors, notably farm size (Sen 1962; Patnaik 1972b) and class structure (Bhaduri 1973; Patnaik 1976) in various states in India[68]. The contours of this debate are beyond the scope of this chapter, rather I focus in particular on the argument made by Farmer (1979) and later developed by Athreya et al (1990), highlighted in Chapter 2, around how differing ecologies play a role in shaping the success or failure of programmes of agricultural intensification in the region. Crucially, the 'dry' and 'wet' tracts in Athreya et al's study are very similar to variegated conditions in Kongunadu, and as such, their analysis highlights the fact that uneven levels of productivity under systems of agricultural intensification in this region, as highlighted in Tables 5.2 and 5.3, were affected by differing regimes of appropriating nature's gifts across this tract. Kongunadu comprised a number of state-sponsored irrigation projects that gave rise to 'wet' areas, notably the Mettur Canal scheme which brought 17,200 acres of north-east Coimbatore under irrigation, the extension of the Lower Bhavani Project which brought 8,000 acres of northern Coimbatore under irrigation, and another 207,000 acres throughout the district under irrigation, and the Amaravati Reservoir project, which brought an extra 21,000 acres of land under irrigation in central Coimbatore (Baglia 1966, 261–65). These all came under the auspices of the 'Grow More Food' campaign and were taken up by the first and second Five-Year plans afterwards. However despite these projects, the irregularity of water supply through even canal systems and the region's low rainfall meant that in the majority of 'dry' areas, wells remained 'the chief source of irrigation' (Baglia 1966, 268). Under the Five Year plans, farmers were given subsidised loans to dig or deepen wells and purchase pump sets (Athreya, Djurfeldt, and Lindberg 1990, 86), thus farmers were facilitated by the state in this period

[67] Productivity measured in tonnes/ hectare.

[68] Much of this literature is part of the 'Modes of Production' debate, outlined in Section 2a, Chapter 2.

to accelerate their appropriation of water. The differentiated access to water, driven in large part by state investments, ultimately meant that farmers required varying levels of capital investment in order to make soils in the region cultivable and to appropriate their wealth. This formulation thus represents a reworking of Farmer's thesis that productivity increases under the Green Revolution were hampered because 'technology has not yet sufficiently overcome problems set by the natural environment' (1979, 316), to suggest instead that 'improvement in productivity is still limited in many areas because technology has not yet sufficiently enabled the appropriation of the natural environment' (1979, 316 modified from original). Ultimately, the state is shown to have enabled the continued appropriation of nature across a range of classes and consequently sustained accumulation for some in different parts of Kongunadu through its interventionist role, despite the onset of ecological degradation and concurrent increases in the costs of appropriating water and soil wealth.

The state's support for agriculture is also crucial in exploring the drivers of agrarian change. The role of both the late colonial state and the post-colonial state in providing incentives for farmers in the form of irrigation technology subsidies and credit, and state-funded agro-technology in the form of state-developed drought-resistant HYVs, is important in understanding how relations of agrarian accumulation were reshaped in this period. Specifically, state subsidies enabled farmers to appropriate nature at a lower cost and with the requirement of less labour power than before given the development of labour-reducing technologies, thus mitigating the rising costs of appropriating nature. To put it another way, in a situation where the state had not provided such support, the rising costs of extracting water relative to other costs of cultivation would have rendered agrarian accumulation increasingly difficult far earlier than was the case[69]. In the post-colonial era, the state's support is largely driven by its particular alliance with petty agrarian capital. As Pattenden suggests (2016a, 55), this is due in part to the fact that the Green Revolution 'bound farmers' livelihoods up with the state as never before', however it is also to do with the particular character of the Tamil state, and its alliance with the dominant Backward Class groups (Gorringe 2012b), as argued in Chapter 2.

Accumulation during the Green Revolution decades was also driven by what was happening outside of agriculture, as Kongunadu became increasingly industrialised, and by state policies that drove accumulation in particular directions. Industrialisation in Kongunadu proceeded apace during the post-war decades, both attracting agrarian capital and agrarian labour, and the impacts

[69] As the second half of this chapter will detail, the costs associated with procuring water in Kongunadu today represent in some cases an insurmountably high cost of cultivation.

of this process on agrarian accumulation were complex[70]. In the first half of the 20th century, the rapid growth of the cotton industry in Coimbatore and later Tiruppur drew labour from rural regions and thus as highlighted in the previous chapter, Gounders adopted tied arrangements to retain labourers, particularly with regards to Madhari labour who were required for their leatherworking skills for the kavalai system[71] (Cederlöf 1997). In this period, capital and credit came from merchant communities such as Chettiars, Mudaliars, and Muslims, from weaving communities – the Kaikkoolars and Devanga Chettis, and from one key agrarian caste – the Naidus (Chari 2004; Mahadevan and Vijayabaskar 2014). Naidus were a minority and constituted big farmers, thus their route into industry was the more 'classical' one (see Terrence J. Byres 1996) of investing agrarian surplus (Mahadevan and Vijayabaskar 2014). Gounder industrial investment was a minority at this stage, but Gounders were present as labourers in mills in both Coimbatore and Tiruppur, and this constituted one of the main 'pathways' into industry for the Gounder community, where several workers with experience in the cotton industry would combine their capital to invest in a small unit (Cawthorne 1995). Another key path for Gounder farmers into industry was through land sales from the 1960s onwards, with 'declining prospects in agriculture', particularly in dryland farming, pushing farmers into new frontiers (Damodaran 2008; Mahadevan and Vijayabaskar 2014, 27). As highlighted in the previous chapter, both of these pathways were made possible for smaller Gounder farmers through the fragmentation of industrial units in Tiruppur, which allowed for entry with lower investment levels (Damodaran 2008), thus it was notably Gounder petty producers that drove the path into industry.

I reiterate these forms of change here to suggest that they highlight the difficulties of agrarian accumulation in this period. Despite sustained state-sponsored agricultural intensification in Kongunadu during the 1950s-1970s, yields often remained stagnant or even declined as shown in tables 5.2 and 5.3. To an extent, this pattern was shaped by the particular requirements of farming in the dryland tract, where the appropriation of soil wealth required continual investments in procuring water and retaining wage labour, and the impacts of droughts were felt particularly hard. As Mahadevan and Vijayabaskar point out, 'Given the vagaries of dry land cultivation, agrarian incomes have always been supplemented with income from non-farm activities, in the form of dairying, seasonal employment in ginning and pressing in Tiruppur, etc.' (2014, 27). For many such

[70] There is a substantive literature which examines this process of industrialisation (see for example Cawthorne 1995, Chari 2004, Carswell and De Neve 2013, Mahadevan and Vijayabaskar 2014, 2014). I do not have the space to get into this literature in detail, instead I briefly draw on aspects that are relevant to the analysis here – changing relations of agrarian accumulation during the period in question.

[71] See Section 3bi in Chapter 4.

households, industry represented a stronger source of income from the 1960s, and the fragmentation of units in Tiruppur, combined with the growth of exports in the 1980s, drew large numbers of Gounder farmers in this period.

The onset of industrialisation in Kongunadu thus drew both labour and petty producers from agriculture, accelerating from the 1970s onwards as entry into Tiruppur became easier. Industry represented a new frontier for potential accumulation for many who remained unable to do so in agriculture. Chari's interview with 'Muthusamy Gounder' offers a glimpse into one such trajectory (2004, 197),

> *'Muthusamy looked back at the agrarian transition he described with a sense of inevitability. "In the kádu [dryland farm in the village] they could neither remain well nor eat well. So they came little by little, one after the other, to [non-farm] work… there were soon no people to work in agriculture"'*

Industrialisation represents a chance for upward mobility, where dryland petty producers can find it difficult even to subsist. This picture was quite varied across the region, mediated by access to irrigation in terms of levels of subsistence/accumulation for farmers, and also by proximity to the two industrial centres of Coimbatore and Tiruppur with regards to levels of local labour absorption (Damodaran 2008, 155). Yet a clear broader trend was underway: the growth of industry drew agrarian labour and petty capital away from agriculture from the 1970s onwards, and even earlier for Naidus (Chari 2004; Damodaran 2008).

Taken together then, the latter years of the colonial state and the early years of the post-colonial government represented a period of uneven agrarian accumulation predicated upon the accelerating appropriation of nature's wealth in certain areas, supported by state investments in agro-technology and irrigation infrastructure which enabled farmers to draw on nature's gifts at a lower cost, and also rely less on waged labour for tasks such as kavalai irrigation. This period also saw the growing role of industrialisation in shaping rural development, as petty producers and labourers as well as capitalist farmers looked to industry as a means of earning and thus overcoming the vagaries of dryland farming, again unevenly across the region. Yet such a regime of appropriation reshaped the region's environment in turn, as there were clear signs of broader ecological decline by the end of the 1980s. Harriss-White notes in this decade that the now 140,000 wells in Coimbatore District averaged 20-25 metres deep – the deepest in India at the time (1996, 67). She goes on to state of this period that 'land [became]…ever more fragile as a form of capital and the costs of maintaining its quality increase[d] over time in relation to the value of its output'

(1996, 68), thus the material impacts of appropriating nature's wealth were shown to engender a rift in the natural processes of regeneration inherent to soil (Marx 1976; Foster 2000). Yet this period was also characterised by high levels of agrarian accumulation for farmers that were able to continue appropriating. As Heyer writes[72] (2000, 2),

> *'In 1981/2 [Gounder] thottam farmers were an impressive group… They had been investing heavily in the previous two decades in land and wells, land improvements, and large comfortable houses and other buildings on their thottams… They were confident and thriving in 1981/2, in an environment that was risky and challenging, which they were handling well.'*

Thus the uneven acceleration of agrarian capitalism in the mid to late-20th century is shown to enable accumulation through the state's support for agro-technology, whilst such technologies simultaneously forged the rift in nature's reproduction times, thus the state is shown to conceal the true costs of appropriating nature.

2.2 Tobacco during the Green Revolution

Tobacco generally flourished during this Green Revolution period, and its success became more closely tied to accumulation among a specific caste group – the Gounders. Tobacco flourished in Tamil Nadu from the 1970s onwards, with the previously stagnant acreage rising from 30,000 acres during the 1880s-1950s Baker (1984a, 206) to an average of 34,000 acres from 1975-1980, with a high of 47,000 acres in 1976-77 (Govt. of Tamil Nadu 1981). The crop was actively promoted by the state in this period, and a network of local tobacco research stations, largely set-up by the colonial government, came under the auspices of the Indian Council for Agricultural Research (ICAR). The Tamil Nadu Central Tobacco Research Institute (CTRI) thus became part of a national network of agricultural research stations in 1969, it develops drought-resistant HYVs of tobacco every decade or so, and also researches other productivity-raising techniques such as cropping patterns and irrigation systems, demonstrated to farmers across the state[73] (CTRI, Vedasandur 2014).

The Green Revolution era also saw a tightening on tobacco markets by Gounder producers and traders in particular. Harriss-White has documented the move of specifically Gounder producers into agro-commercial capital in tobacco in this period. Based on fieldwork in the Coimbatore

[72] The villages that Heyer studies are located between Coimbatore and Tiruppur today and remain unnamed in her ongoing research (2016b), which is consistent with the anthropological studies approach more broadly.

[73] The CTRI's remit is to promote 'fundamental and applied research on Tobacco for the benefit of the farming community' (CTRI 2016).

region from 1977-1981, she argues that; 'The commercialisation of tobacco is also the story of a caste monopoly' (1996, 238), highlighting how the Chettiars, a moneylending caste, initially dominated the industrial curing of Jaffna[74] tobacco alongside a few, richer Gounder traders. This 'caste oligopoly' became a monopoly in the latter decades of the 20th century as Gounders used agrarian profits from crops such as groundnut to produce higher quality chewing tobacco, which they then sold to processors within their own caste group, thus driving Chettiars out of the market (Harriss-White 1996, 238–39). The majority of Gounder traders that I interviewed during the course of my fieldwork had also moved into tobacco trading during the 1970s and 1980s, working formerly as producers and even labourers in some cases. They suggested that during this period, tobacco had offered the best opportunities for agrarian accumulation in Kongunadu, both as a crop and as a cured commodity to be stored and traded. Significant state support was repeatedly cited as the driver behind their upward mobility into tobacco trading, both in terms of credit provision and subsidising irrigation, this era was therefore romanticised by many as the 'high point' in Kongunadu agriculture, and in tobacco in particular. However 'fraternal accumulation' (Chari 2004) and networks among Gounders also played a key role in enabling this specific caste community to ascend through tobacco production and trading. Harriss-White's example in particular highlights the centrality of caste in facilitating market exchange, thus it is this along with the state's incentives that enabled tobacco and Gounders to succeed. Ultimately, tobacco's growth during the period of state-sponsored agrarian intensification in Kongunadu can be both attributed to state support and caste dominance, with its fortunes becoming closely tied to those of the Gounder community in particular.

3. Kongunadu today[75]

In the present era, agriculture in Kongunadu[76] is in a state of decline, albeit on an uneven plane across different districts, and with different drivers in different parts of these districts. Some broad

[74] This is one of the two dominant forms of curing in the state, and will be explained in more detail in Chapter 6.

[75] This section largely draws from secondary data published by the Tamil Nadu state government, Indian central government, and associated agencies and higher education institutions. The data likely suffers from issues of reliability in terms of its collection, representation, and also ties to government policy. Despite this, the data offers a strong basis from which to appreciate the state and regional-level picture in Tamil Nadu and Kongunadu respectively, and is therefore used with the caveat of its potential problems.

[76] As outlined earlier, the original 'Coimbatore' district today constitutes Erode and Tiruppur districts as well. This section therefore refers to all three of these districts when it refers to 'Kongunadu'. Given that only borderland regions of Dindigul and Salem districts are included in Kongunadu, these are left out for ease of analysis.

trends are discernible, both at state level and in Kongunadu in particular. I explore such trends through analysis of macro-level data to develop a broad-brush picture of agrarian change in the current era.

Statistics reveal a number of indicators of an uneven and complex process of deagrarianisation in Tamil Nadu[77], both in terms of structural change and livelihood reorientation. Firstly, despite the overall growth of the state economy, the contribution of agriculture is declining. Tamil Nadu experienced high levels of overall growth post-liberalisation, with state GDP growth rising from 4.7% in 1997-2002, to 9.7% from 2002-2007, the highest on record, before dropping back down to 7.7% from 2007-2012 (Vijayabaskar 2010; State Planning Commission 2012). During this latter period however, the average annual growth rate for Agriculture and its Allied Activities was only 2.2%, including negative growth rates in both 2007-08 and 2008-09, while Services at 7.6%, and Industry at 8.8% largely held up the state's economy (State Planning Commission 2012, 12). The contribution from agriculture and allied services to Gross State Domestic Product (GSDP) dropped from 24.3% in 1980/81 to just 12.6% in 2010/11/01 (World Bank 2004, 1; Department of Evaluation and Applied Research 2014, 15).

Secondly, there is a clear reduction in the number of people engaged in agriculture. Data from the National Sample Survey Office (NSSO) reveals that in 2013, only 35% of rural households in Tamil Nadu were agricultural, far below the national average of 59% (NSSO 2014), and a significant drop from 2001 when this figure was 56% in Tamil Nadu (World Bank 2004). The state's net sown area also dropped from 48% of its total geographical area in 1980, to 35% in 2013/14 (Government of Tamil Nadu 1985, 2014).

The third trend, which emerges at both a national and state level, is the diversification of rural livelihoods. NSSO data from 2014 reveals that at an all-India level, so-called agricultural households receive only 60% of their overall income from agriculture, and in Tamil Nadu this was even lower at 43% of income (NSSO 2014). As such, agricultural households in the state receive over half their income from non-farm sources. NSSO data further reveals that 82% of so-called agricultural households in Tamil Nadu were indebted in 2013, far above the national average of 52%, though this does not necessarily signal distress (NSSO 2014).

[77] It should be noted that this process is identifiable in different states across India (A. Sinha 2007) and has been linked in part to the vagaries of rainfed agriculture (Harriss-White 2008); thus analysis of Tamil Nadu is by no means novel in the Indian context. Instead I aim to provide an overview of the specificities of the Tamil Nadu and Kongunadu case to enable analysis in subsequent chapters.

The fourth trend is a clear increase in agricultural productivity since the 1980s. As shown in Table 5.4, whilst area under cultivation for food grains has reduced by a quarter, production is up almost 50%, thus productivity has increased by 100%. It is unclear whether productivity increases are through gains in labour productivity or yield rises linked to the development of agro-technology, however what is clear is that less land is required to cultivate more food.

Table 5.4: ***State-level shifts in production and productivity, 1981-2014***

Measure	1981/82	2013/14	% change
Total foodgrains production (tonnes)	7375930	11002473	49%
Total foodgrains area (Ha)	4661553	3474573	-25%
Productivity (tonnes/Ha)	1.58	3.17	100%

Table 5.4, sourced from (Government of Tamil Nadu 1985, 2014)

These broad-brush indicators of the scenario at the state-level ultimately point to a complex picture, where whilst agrarian income is declining for rural households, agrarian productivity is also rising. Therefore, the drivers of declining agrarian income are no clearly linked to agricultural distress. I look now to the particular situation in Kongunadu.

3.1 Deagrarianisation in Kongunadu

The particular characteristics of Kongunadu's agrarian change laid out at the end of the previous section have largely deepened and partly shifted in the past three decades or so. Table 5.5[78] highlights a process of spatial change in the region, as the urban population of Kongunadu has risen at a notably higher rate than that of the state, whilst the decline in the rural population contravenes the trend at state-level.

Table 5.5: ***Urban/ Rural population Change in Kongunadu, 1981 to 2011***

District	Urban			Rural		
	1981	2011	% change	1981	2011	% change
Coimbatore	1,544,171	2,618,940	168%	1516013	839105	19%
Tiruppur		1,521,111			957941	
Erode	455,203	1,157,976	154%	1613259	1093768	-32%
Kongunadu	1999374	5298027	165%	3129272	2890814	-8%
State total	15951875	34917440	119%	32456202	37229590	15%

[78] Tiruppur district was only bifurcated from Coimbatore in 2009 and thus only appears in the 2011 census data.

Table 5.5, sourced from (Census of India 1981; Directorate of Census Operations, Tamil Nadu 2011a, 2011c, 2011b)

Coimbatore and Tiruppur have been noted for attracting migrant labour populations from other parts of the state and even neighbouring states (De Neve 2003), thus explaining the high rates of urban growth. Notably rural Tiruppur and Coimbatore comprised a modest rate of population increase, whilst Erode, where industrial opportunities are far more sparse, did not, suggesting that rural migrants to the former regions may be engaged in industrial enterprises to some extent, commuting from villages near the two big cities (for example see Carswell and De Neve 2013a).

In expanding this latter thesis, Table 5.6 highlights the change in livelihood orientation in the region. The number of cultivators in Coimbatore and Tiruppur increased on a very minor level in the period shown, but decreased significantly in Erode, which is a more agrarian district. The region as a whole showed a similar level of decline in the number of cultivators compared to the state as a whole. However in terms of agricultural labour, the region showed a far lower rate of increase compared to the state, and Erode showed a decline, suggesting that farming is becoming less labour-absorbing, or rather labour is choosing to work in other sectors.

Table 5.6: ***Population of cultivators/ agricultural labourers in Kongunadu, 1981 to 2011***

District	Cultivators			Agricultural Labourers		
	1981	**2011**	**% change**	**1981**	**2011**	**% change**
Coimbatore	212229	80217	2%	426561	230026	12%
Tiruppur		135817			246333	
Erode	289469	178170	-38%	388563	370212	-5%
Kongunadu	501698	394204	-21%	815124	846571	4%
State total	5559103	4248457	-24%	6037601	9606547	59%

Table 5.6, sourced from (Census of India 1981; Directorate of Census Operations, Tamil Nadu 2011a, 2011c, 2011b)

Table 5.7 highlights the impacts on scale of cultivation in the district, and shows a notable decrease in both the area under cultivation and under irrigated cultivation, suggesting a decline in the dryland cultivation that was shown to enable higher returns historically.

Table 5.7: ***Changes in cropping patterns in Kongunadu, 1981/82 – 2012/13***

Area in Ha	1981/82	2012/13	% change
Net area sown Kongunadu	684284	485373	-29%

Net area sown Tamil Nadu	5740043	4544240	-21%
Net irrigated area sown Kongunadu	403641	279704	-31%
Net irrigated area sown Tamil Nadu	3424904	322178	-91%

Table 5.7, sourced from (Government of Tamil Nadu 1985, 2013a; Directorate of Census Operations, Tamil Nadu 2011a, 2011c, 2011b)

Yet similar to the state-level scenario, Tables 5.8 and 5.9 show a strong increase in agricultural productivity in Kongunadu.

Table 5.8: ***Food grain production and area in Kongunadu 1981-2014***

District	Production (tonnes)			Area (Ha)		
	1981/82	2013/14	% change	1981/82	2013/14	% change
Coimbatore	214,570	75,029	68%	249,792	42612	-50%
Tiruppur		284965			82757	
Erode	310,250	290690	-6%	224,943	59579	-74%
Kongunadu	524,820	650,684	24%	474,735	184948	-61%

Table 5.8, sourced from (Government of Tamil Nadu 1985, 2014)

Table 5.8 highlights the fact that whilst the area under food grains in the region has dramatically declined, production has increased. The resultant increase in productivity is shown in Table 5.9, thus again, less land is required to cultivate more food in the region.

Table 5.9: ***Productivity of food grain (tonnes/hectare) production in Kongunadu, 1981-2014***[79]

District	Productivity 1981/2	Productivity 2013/14	% Change
Coimbatore	0.9	1.8	203%
Tiruppur		3.4	
Erode	1.4	4.9	254%
Kongunadu	1.1	3.5	218%

[79] 'Productivity' is calculated as tonnes of food grain production per hectare by author using figures from Table 8 in this Chapter.

Table 5.9, sourced from (Government of Tamil Nadu 1985, 2014)

The overall picture in Kongunadu indicates that combined processes of deagrarianisation are underway. The scale of cultivation and the number of cultivators has notably reduced, the size of the rural population in the most rural district of the state has notably declined, and the increase in the number of agricultural labourers has been paltry. However agriculture is also shown to be more productive than ever, with less land and labour required to cultivate more food. Therefore, exploring deagrarianisation from a structural perspective highlights that livelihood reorientation away from farming is not shown to be clearly driven by a decline in agriculture. The specific dynamics of this process remain unclear through statistical analysis alone however. The next section examines how tobacco has fared at a broader level, before the following section looks to factors on the ground affecting the shifting character of agriculture in the region.

3.2 Agrarian change and tobacco

Tobacco production across the state[80] has declined since the turn of the century.

Figure 5.1: ***Tobacco production in Tamil Nadu (in tonnes)***

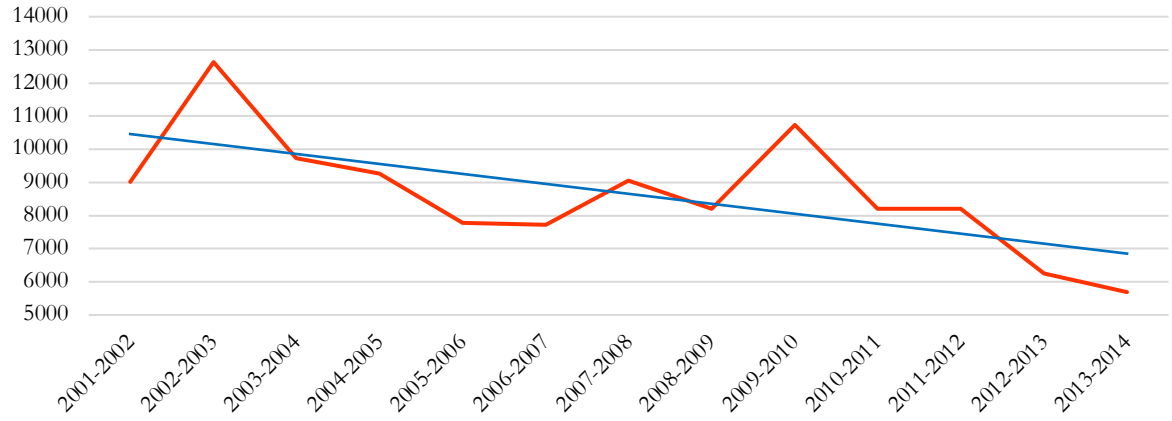


Figure 5.1, sourced from (Dept. of Economics and Statistics 2003, TNAU 2009, Government of Tamil Nadu 2013a, 2013b, 2014)

Going further back than Figure 5.1, state tobacco production fell from an average of 20,600 tonnes from 1976-1981, to an average of just 8,100 tonnes from 2007-2012 (Government of Tamil Nadu 1985; TNAU 2009; Government of Tamil Nadu 2013b). This fall has certainly not been linear, as

[80] As highlighted in Section 4b in Chapter 3, tobacco is also cultivated in eight districts outside the Kongunadu region, thus state-level statistics include these districts. District-level data for tobacco production was not available for the full period as the state 'Season and Crop' reports only provide a district-level breakdown for 'principal crops', and tobacco is not always considered one. Figure 5.1 thus shows state-level data which is consistent, and available district-level data is discussed in the text below the graph.

shown in Figure 5.1[81], there have been notable peaks and troughs in production such that in 2009/10, production rose to the highest level in seven years. Yet broadly, tobacco production in the state is in decline. In Kongunadu, this decline is also notable but not dramatic – the area under tobacco fell from 6,044 acres in 1981/82 to 4,096 acres in 2012/13[82], with peaks and troughs in-between (Government of Tamil Nadu 1985; TNAU 2009). Tobacco has also undergone an overall productivity increase in Kongunadu, as shown in Tables 5.10 and 5.11.

Table 5.10: ***Production and area of tobacco in Kongunadu, 1981-2013***

District	Area (Ha)			Production (tonnes)		
	1981/82	**2012/13**	**% change**	**1981/82**	**2012/13**	**% change**
Coimbatore	2125	47	-91%	3430	317	-80%
Tiruppur		151			372	
Erode	3919	2166	-45%	6320	4624	-27%
Kongunadu	6044	2364	-61%	9750	5313	-46%

Table 5.10, sourced from (Government of Tamil Nadu 1985, 2013a)

Whilst the area under tobacco has reduced by just over 60% in the period indicated in Table 5.10, production has reduced at a lesser rate. Therefore, as shown in Table 5.11, productivity has increased overall, albeit at a rate far lower than that of food grains at the state level (see Table 5.9).

[81] It should be noted that the continued decrease in production after 2009-10 was due to the start of a three-year drought period in Western Tamil Nadu from 2011 onwards (see Figure 5.4), thus the fact that there is no peak in tobacco cultivation in 2011-12 is arguably anomalous. In the year of my fieldwork, 2014-2015, farmers and traders reported a significant spike in the area under tobacco cultivation due to high prices in previous drought years. This will be discussed in more detail in subsequent sections in this chapter and also in the next chapter, however there is no macro-level data to affirm that this is the case.

[82] This year is used as the 'latest' data because it is the last year where Tamil Nadu Season and Crop reports classified tobacco as a principal crop and thus provided district-level data (which will be referred to later in this section), and it is also the last year of normal rainfall before two years of drought in Kongunadu, which skewed production and productivity.

Table 5.11: ***Productivity (tonnes/hectare) of tobacco in Kongunadu, 1981-2013***[83]

District	Productivity 1981/2	Productivity 2013/14	% Change
Coimbatore	1.6	6.7	470%[84]
Tiruppur		2.5	
Erode	2.9	2.1	-27%
Kongunadu	1.6	2.2	39%

Table 5.11, sourced from (Government of Tamil Nadu 1985, 2013a)

In terms of production, this state-level trend contradicts what is happening at the national level, where the neoliberal era has seen a dramatic rise in tobacco production.

Figure 5.2: ***All-India tobacco production (in million tonnes)***

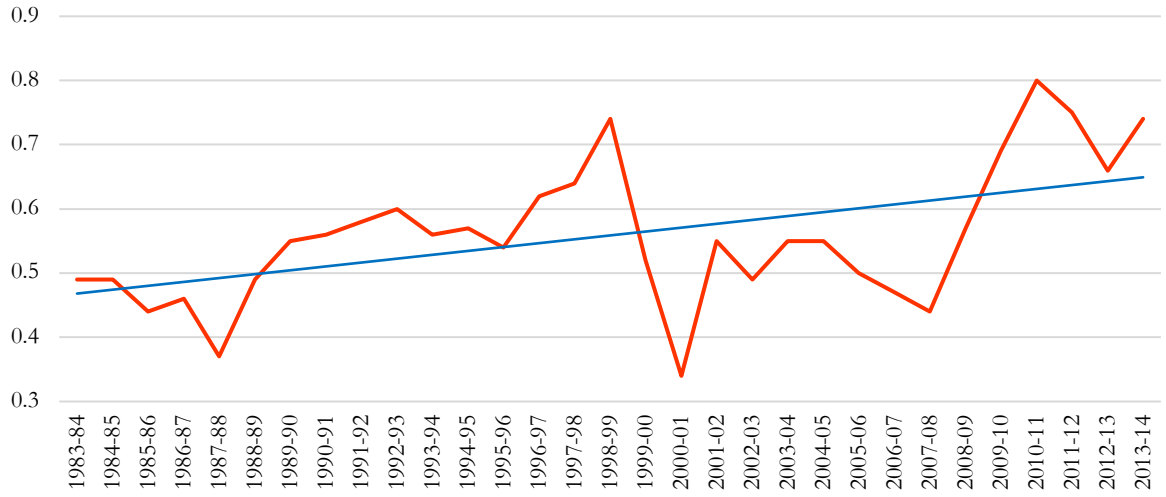


Figure 5.2, sourced from Tobacco Board (2013), Government of India et al (2015)

As shown in Figure 5.2, there has been a clear increase in tobacco production from 2000 to 2014, and in particular from 2007/08 onwards. The increase in production from the 1980s is in keeping

[83] 'Productivity' is calculated as tonnes of tobacco production per hectare by author using figures from Table 5.10 in this Chapter.

[84] It should be noted that this figure is particularly high, over double the equivalent figures indicated in Table 5.9 for rises in food grain productivity over the same period. This may be for a number of reasons, including but not limited to: rises in labour productivity, the increased use of agro-technology (HYVs, chemical inputs), particularly high rainfall in 2013-2014 (Government of Tamil Nadu 2015), and/or increases in irrigation usage for tobacco in particular. I am unable to ascertain the precise drivers of this productivity increase, however the statistic remains here as a means of indicating that tobacco, in keeping with and surpassing food grain crops more broadly, enjoyed a significant productivity increase in the period indicated.

with trends across Southern tobacco-producing countries. Trade liberalisation in the 1980s under the Uruguay Round of the General Agreement on Trade and Tarriffs (GATT) lowered barriers to imported tobacco commodities across Northern producer states such as the US and EU (Bettcher and Shapiro 2001; Eriksen et al. 2015). Tobacco corporations thus increasingly shifted production to cheaper Southern producing-countries such as India, China, Brazil and Malawi (Bettcher and Shapiro 2001; Eriksen et al. 2015). In the Indian case, production has been particularly boosted in Andhra Pradesh and Karnataka where Flue-Cured Virginia (FCV) tobacco is cultivated and regulated under the auspices of both local CTRIs and also state Tobacco Boards, which set minimum support prices, provide additional subsidies to farmers on top of those given by CTRI, and regulate exchange through state-run auctions (Tobacco Board 1975, 2013). Tobacco in these regions is also supported by agronomic research which is conducted by India's largest tobacco company – ITC, with HYVs developed and distributed by its research facility, the Indian Tobacco Leaf Division (ILTD) [85]. FCV tobacco from Andhra and Karnataka is used for cigarettes both for domestic consumption and for export, and in 2012/13 comprised 33% of all tobacco produced in India[86].

Figure 5.3: ***FCV production in India 1997/98 - 2012/13 in million kgs***

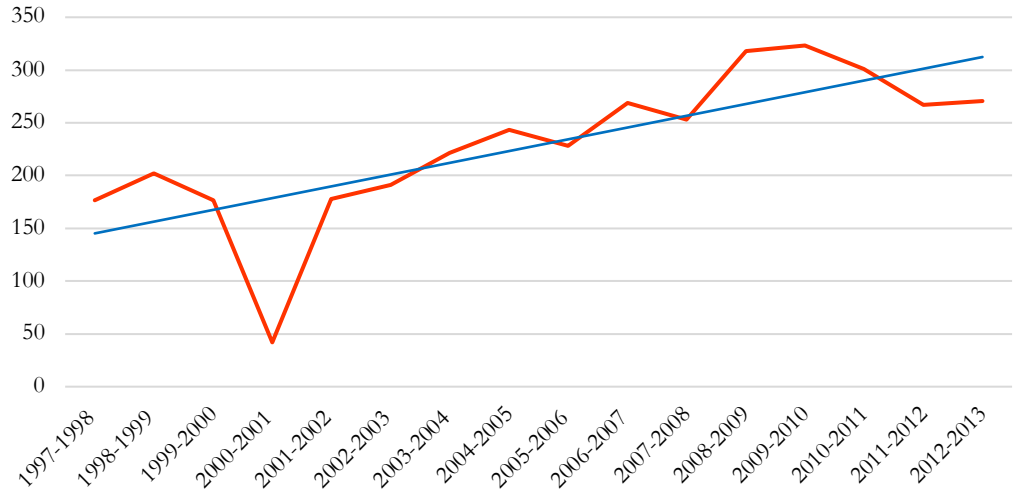


Figure 5.3, sourced from Tobacco Board (2013)

[85] I was able to interview the former head of the Karnataka Tobacco Board, the Head of the Mysore CTRI, and buyers from the Indian Leaf Tobacco Division (ILTD) in September 2014 as part of an early pilot trip to see if I could conduct research in this region and so this information is taken from these interviews.

[86] The other major form of tobacco produced is bidi tobacco, which is primarily cultivated in Gujarat and in 2012-2013 comprised 26% of all-India production (Tobacco Board 2013).

As shown in Figure 5.3, FCV tobacco also exhibits a broadly upward trend since the late 1990s. Tamil Nadu's falling rate of tobacco production thus represents a contravention to the national scenario, suggesting that it is driven by state-level dynamics to some extent.

This section has given a broad overview of the contours of agrarian change and deagrarianisation in Tamil Nadu and more specifically in Kongunadu, and has briefly highlighted how tobacco fits into this overall picture, which stands in contrast to tobacco production at an all-India level. The next section examines some of the factors affecting this process in more detail through an analysis of how agrarian production has been reshaped in the current era, and what this tells us about agrarian change in the region more broadly.

4. Exploring agrarian change in Kongunadu

The process of livelihood-related deagrarianisation that is underway in Kongunadu is neither novel nor unique – it is part of a longer process going back to the industrial shift of Naidus at the start of the 19th century, and even earlier to the start of the 18th century, when the fall of Tipu Sultan's Mysore court led to a decline in cultivators in the region (Baker 1984a). It is also mirrored in states across India as highlighted in Chapter 2. I therefore focus here on the environmental underpinnings of this broader process of change, looking to how the appropriation of nature in the form of water, as well as the exploitation of labour, shifted over the past four decades. I highlight once again how changes in the non-farm economy have also driven shifts within agriculture, representing a new frontier of accumulation and also a new frontier for labour, thus driving declining labour markets in rural areas and increasing wages for agricultural labour, again unevenly across the region. In doing so, I highlight the role of state policy in driving labour away from rural areas, often into urban industry.

The outcome of these shifting relations is a complex and uneven process of livelihood change as part of deagrarianisation, with many looking to move away from agriculture for better opportunities in the non-farm economy, or even remain rooted to the land whilst diversifying incomes away from agriculture, akin to the forms of deagrarianisation documented in Southeast Asia (Rigg, Salamanca, and Parnwell 2012; Rigg, Salamanca, and Thompson 2016). Yet others are forced to leave agriculture due to the rising costs of production, both in terms of appropriating water and exploiting labour, akin to the form of deagrarianisation that has been documented in eastern African countries (Bryceson 1996). The section below offers an overview of the underlying factors affecting uneven livelihood reorientation as part of deagrarianisation that are internal to agriculture, again with an initial focus on ecology – specifically the appropriation of water – as a means of highlighting the socio-ecological groundings of this process.

4.1 Water

The appropriation of water continues to be problem for cultivators, and difficulties in procuring water have visibly deepened in preceding decades. This has manifested in a decreased water supply through canal and river irrigation, caused by erratic rainfall and disputes with neighbouring states over water supply, and also a lowering water table, rendering bore wells increasingly expensive, and also causing disruption in the process of groundwater recharge.

Whilst difficulties in procuring water have been shown to be characteristic of Kongunadu for centuries[87], the extent of such difficulties in the current era is arguably unprecedented.

Figure 5.4: ***Rainfall in Coimbatore district 2001-2016***

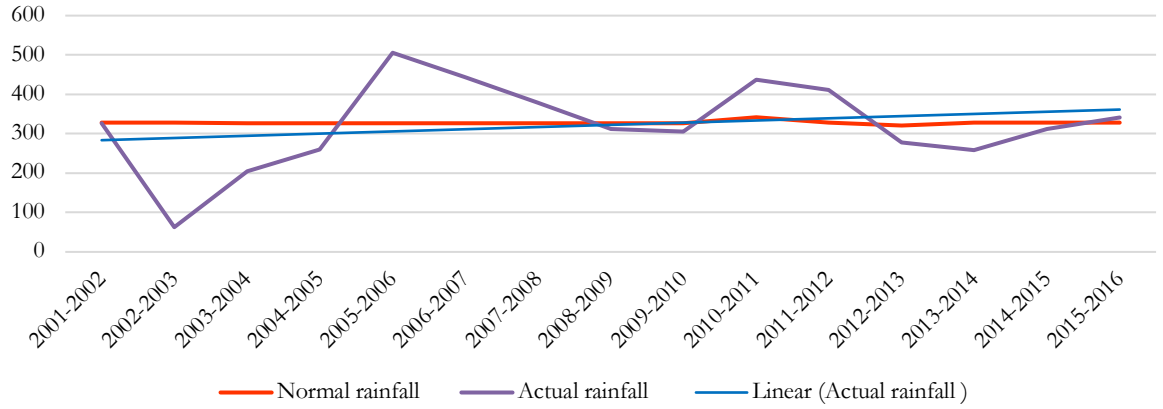


Figure 5.4, sourced from Government of Tamil Nadu (2015)

There are certainly issues such as erratic rainfall which are long-standing. As shown in Figure 5.4[88], rainfall over the past decade has marginally increased in relation to the 'normal', however it is highly erratic, with 2002-2004 and 2012-2015 representing years of drought, and 2005/06 representing a peak.

Whilst it is unclear whether rainfall is more erratic in the current era, it should be noted that there are numerous studies linking shifts in rain patterns in this region to broader trajectories of climate change, largely identified by an increased incidence of 'extreme' weather events, either floods or droughts (for example see Krishna Kumar et al. 2004; Swaminathan and Kesavan 2012; Bal et al. 2016). There is thus some evidence to suggest that rainfall is changing in terms of increasing extremes, though there remains debate on the precise contours of this thesis. Suffice to say, rainfall

[87] See Chapter 4.

[88] As Figure 5.4 shows, the drop in rainfall was particularly dramatic between 2010 and 2013, the three years preceding the period of my fieldwork.

in Kongunadu remains scarce – the 'Western' agro-climatic zone, which comprises all of my research area except parts of Salem, is historically the driest in the state, receiving only 9% of the state's total rainfall with a geographical area covering 14% of the state (World Bank 2004, 7) – and rainfall is historically erratic, forcing cultivators to rely on other systems of irrigation to produce, specifically rivers, canals and wells.

Table 5.12: ***Area under canal irrigation, 1981-2013***

District	**Area irrigated by canals**		
	1981/82	**2012/13**	**% change**
Coimbatore	46045	16439	-23%
Tiruppur		19186	
Erode	1000052	8685	-99%
Kongunadu	1046097	44310	-96%
State total	901077	590050	-35%

Table 5.12, sourced from Government of Tamil Nadu (1985, 2013a)

Canal irrigation has greatly declined in recent years. As shown in Table 5.12, the area under canal irrigation in Kongunadu has decreased quite dramatically over the past two decades. This is despite the fact that the length of government canals in the region has only decreased from 1,439km in 1981/82 to 1,288km in 2012/13 (Government of Tamil Nadu 1985, 36, 2013a, 37), rather the decline in area covered by canal irrigation is largely due to water disputes between Tamil Nadu and Karnataka over water flow from the Kaveri river (Yamunan 2017). Karnataka's sustained refusal to allow court-agreed water flow into Tamil Nadu has rendered the canal systems in Erode almost entirely dry in certain years such as 2012/13, and has thus resulted in a significant reduction in canal-irrigation to this district. This places an even-greater onus on well irrigation as a more certain means of appropriating water, as highlighted in Table 5.13.

Table 5.13: ***Area under well irrigation, 1981-2013***

District	**Area irrigated by wells (Ha)**		
	1981/82	**2012/13**	**% change**
Coimbatore	107074	97949	63%
Tiruppur		76691	
Erode	62088	101404	63%

Kongunadu	169162	276044	63%
State total	1135675	1247824	10%

Table 5.13, sourced from Government of Tamil Nadu (1985, 2013a)

Yet groundwater levels are incredibly low in parts of the region. Heyer's longitudinal data on two villages in Coimbatore offers an insight into the dramatic decline of water tables in the area (Heyer 2016b, 2016a). She writes that in 1981/82, the deepest wells in the region, which were all 'open wells', were 200 ft. This increased to 600 ft in 1996 which heralded the emergence of bore wells, and then dramatically to 1,200 ft by 2008/9 (Heyer 2016a). The water shortage scenario is made more complex by the ways in which surface and groundwater are connected, and the disruption of this recharge process over the past few decades.

This point is best demonstrated through a focus on a specific riverine system – the Noyyil, which flows through the heart of my research area, starting in the Western Ghat mountains, flowing through Coimbatore, Tiruppur and Karur before joining the Kaveri River in Erode (Srinivasan *et al.* 2014). Described in the 1950s District Gazetteer as 'a jungle stream whose freshes are noted for their brief duration, for their violence and for their capriciousness' (Baglia 1966, 263), the river's subsequent decline is emblematic of the breakdown in the metabolic reproduction of nature (Foster 2000), where excessive urbanisation, industrialisation, and ensuing appropriation have disrupted the river's flow and its recharge of groundwater in the region, as well as polluting the scant water that does continue to run (M. Rajshekhar 2016a, 2016b; V. Srinivasan et al. 2014). Writing in 2016, Rajshekhar – a local journalist – describes the 'jungle stream' today (2016a); 'A narrow little rivulet splashes down, bouncing from boulder to boulder as it descends the rockface. It pauses to catch its breath in a tiny pool lined by trees, before rushing downhill again, merging with other streams to form a small river called the Noyyal'. This description sharply contrasts that of the 1950s Gazetteer.

The river's decline has implications not just for those taking water from it directly or via canals, rather it is shown to impact groundwater levels in the areas surrounding the riverbed as well, thus affecting well irrigation. A report by the Bangalore-based 'Ashoka Trust for Research in Ecology and The Environment' (V. Srinivasan et al. 2014) found that there remains a significant relationship between groundwater recharge and the Noyyil river, given that groundwater levels dropped dramatically outside the area around the river itself. However the report decries the lack of adequate research on how the use of Noyyil water for industrial purposes in particular is impacting groundwater, suggesting significant problems with all existing studies which do not match the overwhelming accounts given by farmers of significant groundwater depletion (V. Srinivasan et al.

2014). For example, journalist Rajshekhar highlights a report from a village in the Noyyil basin (2016a);

> *'In Kalimangalam village, P Selvaraj, a distinguished looking farmer in his fifties, said groundwater can now be found only at 1,000 feet. This claim was repeated in village after village. In Alandurai village, a man said that two decades ago, groundwater was available at 200 feet. Ten years ago, it fell to 600 feet, and now it is 1,000 feet.*
>
> *If the estimates of the villagers are accurate, groundwater levels are sinking at the rate of 40 feet a year.'*

Furthermore, Rajshekhar has explored the Noyyil's pollution at the hands of Tiruppur industrialists, where unfiltered, toxic sludge from dyeing units is released wholly back into the river (M. Rajshekhar 2016b). This has resulted in significant water pollution, rendering downstream water unusable for both drinking and cultivation. Visiting a village perched on the edge of the Orathupalayam dam which the Noyyil flows into after passing through Tiruppur, Rajshekhar writes (2016b):

> *'At a tea shop about two kilometres from the dam, villagers say their groundwater is salty and dark in colour. They do not drink it. There is no farming for five kilometres on either side of the river. People in the village – farmers once upon a time – now do job work in Tirupur… A dirt track takes us towards the dam. Walk up its wall and you gaze down on a reservoir where nothing grows but the scrub tree of Prosopis juliflora. Look downstream and you see black water oozing out of the floodgates. A white foam floats on it.'*

This dystopian picture of the Noyyil is by no means one that is uniform to rivers across the region, and even in the case of the Noyyil, the unevenness of the underground aquifers in the areas surrounding the riverbed meant that severe groundwater depletion was not uniform (V. Srinivasan et al. 2014). Yet it does speak to a broader trend in the region's water management, with groundwater use increasing at a rate that continually disrupts natural processes of recharge. In the case of the Noyyil, the water requirements of Tiruppur industrialists have risen to such an extent that in the last decade, they have successfully lobbied for the construction of a pipeline to transport water from the Bhavani/Kaveri river confluence in Erode to Tiruppur, 55km away, bringing 185m litres/day, of which 125m litres is destined for industrial units (Damodaran 2008, 160). This speaks to the need for new frontiers of appropriation among industrialists in Tiruppur, as recharge lags behind the pace of appropriation and accumulation through this. Yet beyond the ecological

impacts of appropriation, the monetary costs of agriculture have also risen as a result. Groundwater extraction through bore wells has also become increasingly costly[89], both in terms of initial investments, and in continual investments in deepening the wells to keep up with the declining water table (Narayanamoorthy 2015). Palanisami et al (2008) have further shown that given these rising costs, farmers would in some cases not profit from cultivation without state subsidies for electricity. Therefore, as the next sub-section highlights, this is not just driven by farmers themselves, rather the state has played an active role in engendering the over-appropriation of Kongunadu's water.

The state's interventions in this area have been complex – certain forms of support that were put in place during the Green Revolution era continue to this day, whilst other such measures have waned significantly over the last two decades under the liberalisation[90] period (Janakarajan 2004; Harriss-White and S. Janakarajan 1997). Specifically, whilst the state has continued to play a role in canal and dam projects over the past decade, particularly projects focused on rehabilitating unused sections of canals (see WRD 2017), its overall expenditure on such collective irrigation infrastructure has largely waned. Instead, it has shifted to promoting individualised forms of irrigation, particularly the shift from open to bore wells through the provision of free electricity to farmers for lift irrigation from 1991 (Janakarajan 2004), and subsidies for drip irrigation (TN Agriculture Department 2012).

Looking to these two measures individually, the provision of free electricity is a reflection of the state's agrarian populist base, and has greatly exacerbated the appropriation of groundwater by farmers. As Janakarajan notes (2004), the introduction of this subsidy was the result of a farmers movement originating in Western Tamil Nadu, within the heartland of Gounder Kongunadu (Baker 1984a; Chari 2004) during the 1970s, specifically Coimbatore[91], Erode and Salem, following raises in electricity tariffs during years of drought from 1965-1976. Janakarajan argues that the farmers' movement originated in Kongunadu due to its particular reliance on well irrigation, and became decidedly 'militant', cementing the power of farmers lobbies in all subsequent state politics and thus resulting in a pro-agrarian policy focus from both major parties, DMK and AIADMK, in the state after the late 1980s (Janakarajan 2004, 240–41). Yet this form of 'competitive populism'

[89] Data on costs reported by tobacco farmers will be detailed in Chapter 6.

[90] It should be noted here that Tamil Nadu has not liberalised to nearly the same extent as other Indian states such as Gujarat. However Tamil Nadu has seen a distinct shift away from statist agriculture policies to enabling the proliferation of markets in areas such as credit and infrastructure, this is alongside a continued commitment to pro-poor welfare policies; see Heyer (2000), Vijayabaskar (2010) and Carswell and De Neve (2011) .

[91] Coimbatore at this time included the current-day district of Tiruppur.

for short-term electoral gain led to 'serious economic and ecological consequences' (Janakarajan 2004, 241), with a dramatic lowering of the region's water table in this period.

Conversely, drip irrigation is shown to decrease the appropriation of groundwater by increasing the efficiency of how such water is utilised. It has been particularly promoted in the past five years, with significantly increased state subsidies for farmers choosing to take up this form of irrigation (Staff Reporter 2016b). Like the shift from kavalai to electric pump sets, drip irrigation represents a technological means of appropriating soil wealth with less reliance on wage labour, and also to increase efficiency in terms of water usage. Specifically, unlike the prevailing method of ridge irrigation, where labour is required to build long ridge channels in the soil alongside crops, and irrigation from wells is directed into these, enabling crops to be flooded with water, drip delivers water straight to the root of the crop through a system of thin pipes and thus reduces the number of labourers and volume of water needed for irrigation (Narayanamoorthy 2005). This technology thus addresses the indeterminacies of both labour control and access to surface/ground-water (Baglioni and Campling 2017), by offering a means of appropriating and deploying water wealth that is less labour-intensive. It is also shown to reduce instances of weeds, as water does not flood soil surrounding the crop and increase its fertility, to enable a lower usage of fertilisers (which are applied through dissolving in the water) due to the targeted nature of the water application, and to decrease the extent of evaporation that occurs with ridge irrigation. Thus farmers require less water to irrigate a given area (Narayanamoorthy 2005). Drip also offers a means of slowing down and even reversing the process of groundwater depletion by reducing the volume of groundwater that farmers need to appropriate in order to undertake production, thus potentially enabling decreased plunder and increased recharge of groundwater. Yet simultaneously, the provision of free electricity for lift irrigation continues, thus the state's interventions are both engendering the decline in Kongunadu's ecology and also working to mitigate it through regulatory incentives for farmers.

The appropriation of water in Kongunadu today is largely shown to be more difficult and more expensive as a result, due to depletion, disruption to natural processes of recharge and an ensuing increase in required investments. As this chapter has shown, this process is not novel – groundwater depletion was reported as early as the 1920s in the region (Heyer 2000) – however the current scenario does appear to be more severe; albeit with uneven levels of severity across Kongunadu, and instances of state-supported technology looking to decrease the appropriation of water such as drip irrigation. The next sub-section examines changes in labour relations, exploring improvements in labour's welfare, the drivers behind such improvements, and how they have shifted the dynamics of agricultural production more broadly.

4.2 Labour

A combination of state welfare, new opportunities for wage work in industry, and state-based affirmative action policies have enabled rural wage labour in current day Kongunadu to enjoy improved wages and working conditions over the past three decades. Furthermore, earlier systems of tied and indebted labour have largely declined across the region, giving rise to increased bargaining power for free labour. Meanwhile, there is also evidence to suggest that petty producers are increasingly taking on wage labour jobs outside of the farm to supplement agrarian incomes, and the cost of cultivation rises in the region. I first provide a brief overview of the situation, before moving on to examine two key drivers: the state and the rise of industrial and services sectors. Contrasting the picture of labour control that was set out in the previous chapter, wage labourers in Kongunadu today are more upwardly mobile. As outlined earlier in this chapter, the onset of industrialisation led to tightening rural labour markets from the mid-20th century onwards, and as they had done earlier in the century, Gounders responded through caste-based forms of labour control, often involving tied labour arrangements (Cederlöf 1997; Chari 2004). Heyer has written that as late as 1981/2, agricultural labour relations in Coimbatore were still 'extremely oppressive' as labourers were at the beck-and-call of their employers day and night. (Heyer 2012, 95). At this time, there continued to be a significant number of permanent farm labourers or pannai-aal that were predominantly male and from the Madhari community, and were employed by Gounder farmers through bonded labour arrangements of credit advances and discretionary benefits (Heyer 2012).

Yet today, conditions for rural labour have notably changed. There are virtually no tied pannai-aal anymore, rather labour in the region is almost entirely hired through wages (Heyer 2000), though unfree labour relations, specifically bonded labour, remain in place and are newly emerging in other parts of the region, speaking to the unevenness of development across Kongunadu (see for example Carswell and De Neve 2013a). Furthermore, caste-based forms of oppression in enabling exploitation have been shown to be weakening in certain villages which are opened up to the opportunities afforded by urban industry (Carswell and De Neve 2013c). Again, such changes are by no means uniform across the region, and are largely contingent upon the particular relations of production in a particular region, which in turn have evolved through a particular ecology (Athreya, Djurfeldt, and Lindberg 1990), and issues like proximity to an industrial area (Carswell and De Neve 2013c). Yet the overall picture is one of improvement in the conditions of labour.

Table 5.14: ***Agricultural Wage rates in Kongunadu, 1981/82 and 2012/13***

Area	Activity	1981/82		2012-2013		% Increase	
		Men	Women	Men	Women	Men	Women
Coimbatore	Sowing/ plucking seedlings	8	5	223	119	188%	146%
	Harvesting and reaping	8	5	207	111	167%	129%
Tiruppur	Sowing/ plucking seedlings	-	-	249	99	-	-
	Harvesting and reaping	-	-	242	113	-	-
Erode	Sowing/ plucking seedlings	9	5	248	122	185%	152%
	Harvesting and reaping	10	6	247	125	155%	115%
Kongunadu	Sowing/ plucking seedlings	8	5	240	113	210%	133%
	Harvesting and reaping	8.5	5.5	232	116	182%	118%

Table 5.14; sourced from (Government of Tamil Nadu 1985, 2013a)

As shown in Table 5.14[92], labour wage rates have risen for both men and women, though female wage rates remain below that of men, indicating exploitation is differentiated along gendered lines. Heyer (2012) also reports increased labour organising in the form of contract labour gangs by 2008/09, this enabled increased bargaining power in terms of wages and conditions. Overall, the historically-dominant forms of stringent caste and gender-based labour control documented in the previous chapter are shown to be under threat in the current era, rendering control more difficult and thus indeterminate for producers. The rest of this section looks to the state and industrialisation as drivers of shifting labour relations in the region.

The state has played a key role in shaping labour's improved working conditions and increased bargaining power, as well as the flight of rural labour into industry. This has been through a combination of welfare measures, affirmative action policies, and also incentives for industrial growth. Firstly, the state's welfare policies have lowered labour's reproduction costs, affording labourers increased bargaining power in choosing wage work. The state government has resisted liberalisation to some extent due to the relatively pro-poor ideology underpinning the two dominant parties, the most notable result of this being sustained welfare provisions for the poorest (Heyer 2012). This includes the promotion of the National Rural Employment Guarantee Act

[92] Table 5.14 shows real wage increases. Wages have been adjusted using the State Consumer Price Index (Dept of Economics and Statistics 2018), where 1982 is used as the base year.

(NREGA), which guarantees every household 100 days of labour each year at a daily wage rate of Rs. 173 as of 2015 (Neve and Carswell 2011; PTI 2016), as well as a range of food subsidies, most notably through the Public Distribution System (PDS) (Neve and Carswell 2011). Though both of these are national schemes, Tamil Nadu has been particularly lauded for its implementation of both the NREGA (Khera and Muthiah 2010), and the breadth and coverage of its Public Distribution System (Vydhianathan and Radhakrishnan 2010). Whilst such schemes have shifted the burden of labour costs from capital to the state to some extent (Heyer 2012), they have also significantly decreased subsistence costs for labour.

Furthermore, labour has been less reliant on wages for basic reproduction expenses, enabling it to exercise greater bargaining power vis-à-vis employers. As Pattenden argues (2016a, 165),

> *'Universal poverty reduction programmes not only have the capacity to weaken dominant class gatekeepers' control over the distribution of public resources, but critically they can also loosen labouring class dependence on capital for its material reproduction. By doing so they provide labour with greater room for political manoeuvre and a common agenda to unite them across their many forms of fragmentation.'*

However it should also be noted that whilst state policies represent significant gains for rural wage labour in the region, they also render costs of cultivation high for producers, particularly for petty producers, many of whom choose to resort to non-farm wage work to supplement incomes from commodity production (Carswell and De Neve 2013c; Heyer 2016b).

The second area of state intervention has been through its affirmative action policies. From 1947, state governments were afforded powers to undertake affirmative action policies or reservations on a caste basis, implementing quotas for specific class categories in the civil service, among elected representatives, and in university recruitment (Jaffrelot 2006). As such, the Tamil Nadu state government has seen significant struggle among various caste groups in gaining increased levels of state support through reclassification down the reservation class scale (Jaffrelot 2006; Gorringe 2012a). Significantly, this struggle has been particularly potent among the two dominant agrarian caste groups in the state, Gounders and Vanniyars[93]. Gounders were initially afforded Forward Class status post-Independence, which meant that they did not qualify for any form of affirmative action, however they successfully lobbied the DMK government to attain Backward Class status in 1975, thus subsequently gaining from reservation policies (Gorringe 2012a). They have since

[93] My fieldwork sample contains a minority of Vanniyars from the borderland of Kongunadu, in current-day Salem district.

continued to lobby for Most Backward Class status as a response to the increased quotas afforded to both Muslim and Christian communities in the state (TOI 2008). This remains one of the core aims of the KNMK party, which as highlighted in Chapter 2 largely seeks to represent the upwardly mobile Gounder community (Vijayabaskar and Wyatt 2013). The Vanniyar community also successfully lobbied to be reclassified as MBC from BC during the 1980s following violent demonstrations and the creation of a new caste-based party, the Paatali Makkal Katchi (PMK) or 'The Toiler's Party', which continues to hold one parliamentary seat in the state today. Alongside these changes in caste-based classification, the proportion of seats that are reserved for BC, MBC, Scheduled Castes (SC) and Scheduled Tribes (ST) has also increased overall, rising from 41% of all government seats in 1951 to 69% today (Govt. of Tamil Nadu 2006). This increased reservation explicitly leaves out the 'creamy layer' of the OBC group however, which constitutes anyone within this class category that earns over Rs. 600,000/ annum (Ghildiyal 2015). The overall impact of these changes is that by the millennium, young Gounders and Vanniyars were able to access higher education more easily, as all Government colleges in Tamil Nadu are required to abide by a reservation-based quota system for admitting students. As such, pathways out of agriculture and into the services sector in particular became more viable for the next generation of would-be dryland farmers, enabling them to forge a largely positive path into the non-farm economy.

The third area of state support is linked to this last point – the state's promotion of the industrial and services sectors, specifically its promotion of the IT sector from the late 1990s onwards. The state's economic development strategy post-liberalisation has been largely defined by an increased turn towards attracting foreign direct investment (FDI) in the IT sector through a range of investment-friendly policies (Vijayabaskar 2010). These have included tax incentives, low-cost land leasing and deregulation of wage labour (Aradhna Aggarwal 2006). The state's strategy has been fairly successful, with investments in the auto, telecom and hardware sectors from major corporations such as Ford, Hyundai, Renault, Dell Computers, Samsung, Nokia, and Siemens (Vijayabaskar 2010, 38). By 1998, the state counted software exports of US $300 million, rising from almost nothing a decade earlier, and by 2000, the state accounted for 7% of India's software exports (Radjou and Bajpai 2000). IT-related jobs that require a higher education qualification expanded rapidly during the late 1990s to comprise the largest number of software professionals in any Indian state by 2000 (Radjou and Bajpai 2000). Industrial growth also continued in both Coimbatore and Tiruppur, with the former diversifying into electronics manufacturing from the mid-20th century and the latter growing rapidly as a global centre for knitwear exports (Damodaran 2008). As such, state investments in services and affirmative action policies enabling increased numbers of BC castes going to university opened new pathways out of agriculture and into

professional, salaried jobs from the 1990s onwards, particularly for young Gounder and Vanniyar agriculturalists.

Employment and labour conditions have improved significantly over the past three decades, in terms of wages, labour control, bargaining power, and working conditions. The state has also played an active role in enabling this betterment, through welfare and affirmative action policies, and through the particular development path it has chosen in promoting a burgeoning IT sector. As such, farmers have found it increasingly difficult to continue exploiting labour on thottams, as rural labour is in decline, more expensive, and harder to exploit. Again, there are certainly differences in the extent to which labour markets have declined across the region, and there is even some evidence of caste-based forms of oppression deepening in the current era (Carswell and De Neve 2013c). Interestingly, there are numerous ways in which farmers have tried to decrease their reliance on labour, for example through the take-up of drip irrigation (Narayanamoorthy 2005), or by growing less labour-intensive crops such as coconut (Vijayabaskar 2010). Such measures represent a means of overcoming the indeterminacy of procuring and controlling labour through investing in technologies, and through this, of appropriating nature more easily, albeit not always at a faster rate as is shown in the case of drip irrigation. Thus shifts in labour relations are intimately articulated with shifts in the appropriation of water, and the development of technologies to enable the latter. The next and final sub-section draws together analysis from this section through an exploration of land in Kongunadu, using this as the basis to understand the contours of agrarian change in this region.

4.3 Land and agrarian change

The changing physical character of land in Kongunadu over the past two decades is stark. I have visited Coimbatore as a child and my only memory is of endless fields of green. Yet today, the region's water scarcity is remarkably visible upon entering it – vast tracts of dry scrub, dotted with thorny seemai karuvel trees (Prosopis Juliflora) dominate much of the rural landscape around Coimbatore and Tiruppur in particular (Jaishankar 2009), waning as you drive north towards the Kaveri region into Erode and Salem, and south towards Oddanchatram. Scrub land across Kongunadu is bordered by coconut trees, and in much of the northern and central areas, these trees comprise brown, dried out leaves as a result of the leaf blight that hit large swathes of Coimbatore, Erode and Salem districts from 2005 onwards (Staff Reporter 2016a). Scrub land comprises parched, thin soils, and sometimes stray, malnourished livestock that feed off the increasingly sparse seemai karuvel. These scrub patches are sharply contrasted by lush plots of brilliant green where cultivation flourishes. Vivid green paddy beds, uniform deep-green sugarcane

fields, rows of large-leafed, bright green tobacco plants and lines of delicate, lime green turmeric plants are all sharply contrasted by barren, dry earth and sparse, brown seemai karuvel in neighbouring plots. Such cultivated plots are in almost all cases fed from bore well water, and offer a stark reminder of the profound force of irrigation technology in overturning the natural rhythms of the region's aridity. Rivers and streams are also entirely dry and remained so throughout my stay – the wide river bed of the Amaravathi located south of Tiruppur, and the smaller deeper duct of the Noyyil which ran through Coimbatore and Tiruppur became at best meandering brooks after the north-east monsoons of October – December, but they remained largely empty. When water did flow in the Noyyil, it was alarmingly polluted in the stretches going eastward from Tiruppur. Patches of brilliant green, where lilies and other river plants came up after the water had receded in the river bed soils, contrasted the cracked earth of these beds.

This more recent patchwork of arid browns and vivid greens offered an ever-visible emblem during my fieldwork of the region's changing political ecology. The shifting nature of land in rural Kongunadu further offers a glimpse into the uneven process of rural change that is underway. As highlighted in Table 5.7, both the overall area sown and cultivated area under irrigation in Kongunadu declined by around 30% between the early 1980s and the start of the current decade. Land is increasingly thought of as a commodity rather than a means of production, there is a burgeoning non-agrarian land market underway in Coimbatore and Tiruppur districts in particular, where stretches of arid land are broken up by schools, colleges, ashrams, and manufacturing plants. Yet this process is uneven across the region, and also characterised by land sales rather than the patterns of violent dispossession evident elsewhere in India (see Levien 2011). That is not to say that the state is not playing a role however, Vijayabaskar (2010) has written that under both DMK and AIADMK, the state has taken an active role in acquiring agricultural land for industrial development. He points in particular to a law changed under the DMK state government in 1999, entitled the Tamil Nadu Acquisition of Land for Industrial Purposes Act (2010, 39), suggesting that the DMK's amendments to the Act allowed the state to acquire land faster and offer landowners fewer forms of legal redress when protesting acquisition rationales or low levels of compensation[94]. Yet land sales in Kongunadu and Tamil Nadu more generally are still largely characterised by willing sellers, particularly given the high prices that land fetches (Vijayabaskar and Menon 2017).

[94] Vijayabaskar and Menon (2017) have also written about the state's active role in creating 'land banks' in Tamil Nadu – institutions which acquire and collate land from individuals, making large parcels that are attractive to foreign direct investment (FDI). This is part of the state's role in driving forward the services sector.

In returning to the theoretical arguments developed earlier in this chapter, it is clear that in the current era, a process of uneven and selective livelihood deagrarianisation is underway in Kongunadu, affected to some extent by the increasing difficulties of appropriating nature's wealth due to both rising costs for technologies required to extract groundwater, largely driven by its depletion, and to the difficulties of exploiting wage labour. The picture is not even across the region, and increases in productivity over the past three decades potentially speak to the success of technologies designed to appropriate nature, and of labour productivity. Furthermore, deagrarianisation is shown to be part of a longer process where certain rural classes choose to find better opportunities for both remuneration and accumulation, whilst others still are forced to look for non-farm income due to the rising costs of agrarian production. Thus there is by no means an overwhelming picture of agrarian distress that is noted in wider literature on deagrarianisation in other regions, but rather one suggesting complex processes of diversification and class differentiation that are linked to non-farm opportunities. The overall picture is one in which the appropriation of soil wealth is increasingly difficult, thus rendering production in this dryland tract increasingly unattractive, and sometimes untenable. The region's buoyant land market, as well as evidence of petty producers moving into non-farm labour, therefore speaks to a process of deagrarianisation that is based on questions of reproduction for diverse classes of labour, and better opportunities for accumulation among classes of capital. The region is endowed with significant opportunities in the non-farm economy, and these along with state support for affirmative action policies have opened new pathways out of agriculture for petty producers and capitalist farmers from the Gounder and Vanniyar communities. The overall picture is ultimately complex and certainly uneven, with wage labour in particular having notably bettered their relations over the past three decades.

5. Conclusion

This chapter has offered a broad narrative of how Kongunadu shifted from the post-colonial era of agricultural intensification to the present era of uneven agrarian change and within this, partial deagrarianisation. It has highlighted how the process of state-sponsored intensification began as early as the 1940s, and came partly in response to signs of decline in the region's ecology, with depleting soil nutrients, soil erosion and lowering groundwater reported in the early decades of the 20th century. The chapter has consequently highlighted the key role of state-sponsored agro-technology in revitalising ecology and enabling agrarian accumulation, continuing into the present era of free electricity for pump sets and subsidies for drip irrigation. The focus on the Green Revolution in Kongunadu also highlighted the central role that industrialisation played in this

period in shaping relations of agrarian production, offering trajectories out of difficult dryland production for Gounder petty producers from the 1970s, and a space for Gounder labour and capital prior to that.

The chapter then jumped to the present era, offering a statistical overview of the contours of agrarian change in Kongunadu today. Whilst less land is cultivated than before, productivity increases mean that food grain production has risen, thus the picture is not clearly tipped towards declining appropriation and accumulation. However a closer look at water and labour reveals rising costs of cultivation, and highlights how the two are articulated, as tightening labour markets have rendered the appropriation of nature more expensive, a process mitigated by the introduction of state-sponsored technologies to appropriate nature. Accumulation thus proceeds through the appropriation of nature, in this case of soil and water, and given the particular intensity of cultivation in this tract, nature is going through a process of depletion in certain areas. This is the broader context within which tobacco producers, traders and labourers that are the subject of analysis in the next three chapters are situated. Subsequent analysis will therefore draw on the broader political economy context outlined here to explore what is happening now on the ground, starting with the next chapter which looks at the specific contemporary features of tobacco production in Kongunadu.

Chapter 6
Tobacco production

1. Introduction

This chapter examines tobacco production in Kongunadu today. It details the cultivation of the crop, and looks to locate the role of ecology within this process (Burkett 1996). Drawing on analysis in preceding chapters, it further details how the crop in its current form has been developed to enable cultivation to proceed through relatively low levels of water and labour. As such, a focus on tobacco highlights the complex ways in which nature has been 'ordered' and simplified – that is, placed at the service of capitalist production (Baglioni and Campling 2017) – to enable its cultivation. though this is not understood to be particular to tobacco vis-à-vis other crops. This is articulated with an analysis of labour relations in tobacco producing villages, which vary across the region, to highlight how tobacco farmers are also facing difficulties in procuring and paying for labour.

This is the first of three empirical chapters, and focuses specifically on the production of tobacco, whilst the next two chapters look at exchange by farmers and traders in the two key markets that exist for tobacco in the region – those of Sun-cured and Jaffna-cured tobacco. Taken together, the three chapters draw on Harriss-White's approach (1996, 2007) to markets as 'systems' of surplus extraction and exploitation, determined by downstream power relations. This approach complements operationally the overall socio-ecological lens developed in this thesis, as it allows for a systematic analysis of the interplays between production and circulation in processes of socio-ecological agrarian change. In short, as indicated in Chapter 2, the approach is drawn on primarily as a useful framing device for fieldwork material. It offers a means of understanding how surplus value from labour and nature's wealth are appropriated through the market, how production and circulation are articulated in the tobacco market, and how power relations downstream of production shape upstream processes.

This chapter first suggests that tobacco producers, in keeping with the complex and uneven process of livelihood-related deagrarianisation underway across Kongunadu that was identified in the previous chapters, are generally looking to leave agriculture behind. The factors underlying this livelihood reorientation are explored from the perspectives of the farmers involved and are shown to largely be centred on the fact that there are better opportunities outside agriculture rather than distress within agriculture. Yet there are also shifting dynamics within agriculture that are

propelling the change, and these are subsequently explored through the case of tobacco: specifically, increasing difficulties of procuring and paying for labour and of appropriating water in this tract. In short, these dynamics relate to both labour and ecology.

This chapter is structured as follows. I first provide an overview of tobacco production and producers within my sample. I go on to examine the livelihood reorientation that is underway, looking to narratives from farmers and traders themselves before unpacking these through an examination of the material factors behind this process. Finally, I focus on why tobacco remains resilient in this context.

2. Tobacco production in Kongunadu today

Tobacco is a 120-day crop from seed and a 90-day crop from seedling. It is cultivated during the wet season – September to January[95], under the rains of the North-East monsoon (Government of Tamil Nadu 2015), and harvest begins shortly after the festival of 'Thai Pongal' in late January, which is a Hindu harvest festival.

Tobacco is cultivated from seed or seedling, and all plant varieties cultivated in western Tamil Nadu today are HYVs. The CTRI[96] develops new HYVs every decade or so, and they are bred to be high-yielding, drought-resistant, pest-resistant, and to produce thick, durable leaves to withstand the process of tobacco curing (CTRI, Vedasandur 2014).

Table 6.1: ***High-Yielding Tobacco varieties in Kongunadu 2014-2015***

Abirami, Bagyalakshmi, Munnai and Vairam	**Oosi-Kappal**
▪ Large, wide, thick leaves. ▪ Short plants. ▪ 5-8,000 plants/ acre. ▪ Grown in Dindigul, Coimbatore, and Tiruppur.	▪ Long, thin, delicate leaves. ▪ Tall plants ▪ 10-14,000 plants/ acre. ▪ Grown in Erode and Salem, rarely in Tiruppur.

Table 6.1, author's own, based on fieldwork 2014-2015

[95] Within this cropping period, there is significant variation, with farmers in Salem and Erode planting as late as December, and farmers in Coimbatore as early as the start of September.

[96] The CTRI also has its own farm or Pannai of over 50 acres of tobacco and coconut, which it sells to local traders, primarily for use in Jaffna markets.

The plant's production and exchange is spatially-disaggregated, with different spatial nodes for different parts of a complex market, highlighted further in subsequent chapters. This begins with the geography of plant type cultivated, as indicated in Table 6.1. In the Southern, Central and North-Western areas of the research field, farmers primarily cultivate Abirami or Bagyalakshmi varieties and more rarely Munnai or Vairam. These are characteristically the largest of all the tobacco plant varieties, with large, flat, thick leaves and low-height plants of around 3-4ft. Due to the sheer size of the plants, farmers in these regions use a lower cropping density than those in the North-East region. In Salem and Erode alone, the Oosi-Kappal variety is cultivated. This plant is characteristically taller than the other HYV varieties at around 4.5ft, and its leaves are long, thin, and more delicate to handle. Despite higher cropping densities of Oosi-Kappal, the lightweight leaves means that yield/ hectare in terms of weight is quite similar to other tobacco varieties grown in the rest of the region, ranging from 0.9-1.2 tonnes/ acre. All the HYVs in question are provided at subsidised rates to farmers by the CTRI, and are bred to suit the different soils and climates of specific regions in western Tamil Nadu.

In terms of cultivation, tobacco comprises a fairly busy albeit short process of production. Farmers plough land two-to-four times before planting tobacco depending on whether soils are red or black, each acre takes an hour, and there is a highly-localised market for tractors, where few farmers/petty traders own tractors and lease them out to the majority in the ploughing season. Rates vary from ₹500-900/hour depending on region and season, with peak seasons being planting season, September/October, and harvest season, January-March. Tractor owners are always localised, and there are no larger companies involved in this market.

Once land is ploughed, producers apply a combination of manure, from their own cattle or purchased locally, Diammonium Phosphate (DAP), Urea, and other chemical pesticides/fertilisers specific to different regions, purchased primarily from government-run shops. The majority of farmers cultivate from seedling or naathu, and thus these are transplanted from local farmers that have large-scale nurseries, or from CTRI, into enriched soils. Those that plant from seed, or vethe, do so on thin ridges with careful watering, and then transplant these onto the similarly-described enriched soils after 30 days. Expenditure on chemicals varied greatly, from ₹5,000/acre up to ₹20,000/acre, the majority of farmers spent around ₹10,000/acre, and the most significant cause of variations was manure, which proved very expensive to purchase, and afforded great savings for those with a sufficient supply from their own livestock.

Plants are weeded 2-3 times over their full duration, once around 30 days from seedling (60 days from seed), and once another 20-30 days after this. Plants are also regularly irrigated in years of

poor rainfall, every 2 to 3 days as seeds/ seedlings, and every 10 days by the time of harvest, with time between irrigations increasing over the course of their 90/120 day cultivation. The majority of irrigation is ridge-irrigation, which involves water from wells, canals or rivers being directed down long ridges that are built into soil alongside rows of plants, to allow roots to be flooded and thus watered. These ridges require re-building after both weeding sessions. A minority of farmers used drip irrigation, and this comprised difficulties which will be referred to later in this chapter.

Following an innovation from CTRI in the last decade or so, farmers also undertake 'topping' of the plants' buds at 60 days (30 days if planted from seedling) and apply a chemical 'suckericide' in order to prevent buds from reappearing[97]. This enabled the plant's growth hormones to be concentrated in its leaves, thus enabling leaves to be larger and firmer. Prior to the dissemination of suckericide, farmers undertook toppings, but had to employ wage labour every 4/5 days for the last 30 days of the plant's duration in order to continually top the plants. As such, suckericide has resulted in significant savings on wage labour[98].

Plants are harvested after 90/120 days from seedling/seed respectively, and depending on which form of curing they go on to receive, this is either undertaken by farmers and their own hired labourers, or by traders that bring a team of wage labourers. There are two dominant forms of curing in Kongunadu – Sun, which comprises 70% of all tobacco in the region, and Jaffna, which comprises 20% (CTRI, Vedasandur 2014). Sun curing involves relatively low levels of capital investment and can therefore be undertaken by individual farmers on their own land, whereas Jaffna involved large-scale, specialist equipment and thus requires an economy of scale[99]. Farmers selling to Sun-cured value chains[100] thus largely undertake their own harvest and curing, whilst those selling to Jaffna value chains have traders undertake harvest and then transport tobacco away.

[97] There were rare instances where farmers reported ineffective suckericide and the continual reappearance of buds.

[98] Farmers highlighted the fact that the increased use of tractors in the last three decades and the innovation of topping and suckericide had significantly lowered cultivation costs for tobacco, though I was unable to calculate net savings due to a lack of longitudinal data.

[99] The specifics of these two forms of curing and the different relations of production/ forms of accumulation that they engender is the subject of chapters 7 and 8.

[100] I use the term 'value chain' descriptively throughout this thesis rather than analytically.

As shown in Table 6.2, these forms of curing are also tied to specific regions, with different regions

Table 6.2: ***Commodity differentiation by region***

Northern Zone	**Central Zone**		**Southern Zone**	
Sun	Jaffna	Sun	Jaffna	Sun
Traders purchase tobacco after minimum 30 days curing.	Traders purchase tobacco pre-harvest.	Traders purchase tobacco pre-harvest and with different levels of curing.	Traders purchase tobacco pre-harvest.	Traders purchase tobacco pre-harvest and with different levels of curing.

Table 6.2, author's own, based on fieldwork 2014-2015

comprising markets for either one or both of these types of cured tobacco. As such, depending on the region, farmers have some flexibility in choosing whether to take on harvesting and curing and sell to Sun traders, or whether to sell green (pacche) prior to harvest to Jaffna traders. The market is therefore spatially disaggregated, with diffierent nodes flourishing in different regions.

The specifics of curing for both Sun and Jaffna value chains will be detailed in the next chapter, suffice to say for the purposes of this section that tobacco requires higher investments from producers for each stage from harvest to end-stage curing. However with added investment comes higher remuneration through the commodity market, as tobacco fetches higher rates in proportion to the extent of curing undertaken. Furthermore, once cured, tobacco can be stored for up to three years, to be sold at low seasons, when rates for tobacco go up in relation to the post-harvest period. Producers thus retain a significant degree of flexibility in terms of when and how to market their commodity; the implications of this will be further explored in the next section.

Tobacco farmers comprised a relatively heterogeneous group. I explore those that constituted my interview sample here, though I would stress that subsequent analysis relies not just on interview data, but to a great extent on observations and encounters, as outlined in Chapter 3.

Table 6.3: Kongunadu landholding pattern (2011-12) compared to my sample of tobacco farmers[101] **(2014-15) in Ha**

Region	Marginal (1>)	Small (1 to <2)	Semi-Medium (2 to <4)	Medium (4 to <10)	Large (10<)
Coimbatore	46.5%	27.8%	17.5%	7.3%	0.9%
Tiruppur	38.5%	28.1%	21.7%	10.5%	1.2%
Erode	53.2%	10.8%	14.6%	4.3%	0.3%
Kongunadu	46.1%	22.2%	17.9%	7.4%	0.8%
My sample	8.2%	19.7%	36.1%	27.9%	8.2%

Table 6.3, sourced from (Census of India 2011) and (Farmers, Traders and Brokers 2014)

As shown in Table 6.3, in terms of land size, my sample included a far lower number of marginal farmers, and far higher number of semi-medium, medium and large farmers than is typical for Kongunadu according to the latest agricultural census data from 2011.

Whilst my sample is not representative, upon seeking out and interviewing 'typical' (saardhanam) tobacco farmers for two months, I soon realised the skew in terms of land size when compared with census data, and actively sought out marginal farmers for a further two months. However it became apparent that tobacco was not a choice crop for marginal farmers in the region due to the relatively high levels of investment and also attention required to cultivate the crop. Specifically, marginal farmers reported that tobacco required a relatively high level of attention compared to other cops, and these farmers' main source of income was through wage work on other farms or, more likely, in industry. As such, if they cultivated cash crops for the market at all, they chose to cultivate less labour-intensive crops. This was substantiated through my observational analysis in villages across the region. Among the five marginal farmers that I interviewed, only one earned his money primarily from agricultural commodity production. Two acted as a commission agents and traders of tobacco, which were their main sources of income, one was a weaver, working for a larger company, and another a tailor, also working for a company. Both of these relied on labour from their extended family to sustain tobacco cultivation. These farmers were thus not necessarily indicative of marginal farmers more generally, given that traders and commission agents were able accumulate year-to-year, making them petty capital, and highlighting the fact that land size is not necessarily a clear indicator of class (see Patnaik 1972a for this argument).

[101] 7 out of the 68 respondents owned no land at all, so the 'sample' represented in this this table comprises 61/ 68 respondents.

It was thus primarily small and medium farmers that cultivated tobacco and earned from it. These groups comprised petty commodity producers that alternated between agrarian production and wage labour, and also capital, who were able to accumulate from farm and/or non-farm activities as commodity producers. In every case, small and medium farmers cultivated more than one crop, and at least one household member undertook non-farm activities, either as capital or as labour.

The other significant group were 'large farmers', which comprised five farmers, and represented 8.2% of those interviewed with land, as opposed to just 0.6% of *Kongunadu's* landholding population in 2010/2011. Only two of these farmers cited agricultural commodity production as their main source of income, two others were primarily curers and traders of tobacco, and the last was a large-scale landowner who primarily leased land to traders for income. These farmers mainly cultivated tobacco as a sure source of income, as Mr E, a large farmer and trader commented; 'We grew it because it started to give us good earnings, nothing else gives income like it, that's why' (Mr E, farmer and trader 2015). However, they were by no means committed to it, and of the four out of five large farmers that had children, all four said that their children were out of agriculture for good; despite their parents' large land sizes and strong incomes from agriculture in general.

In terms of how tobacco fit into broader cropping patterns, farmers from all classes cultivated a combination of cash and food crops, as indicated in Figure one. Observation and interviews revealed that small and medium farmers cultivated two to three cash crops in years with good rainfall, whilst larger farmers cultivated over four, and marginal farmers no more than two. Tobacco was repeatedly cited as a key cash crop that was cultivated due to the expectation of high market returns, and in light of its short duration. However farmers also stressed that cropping patterns varied from year-to-year, with the decision around which cash crops to pursue in any given year being reliant on market prices for the crop in the previous year, rain forecasts, available capital and available time. As such, tobacco was not necessarily cultivated every year by farmers.

Figure 6.1 ***Frequency of non-tobacco crops cultivated by sampled farmers***

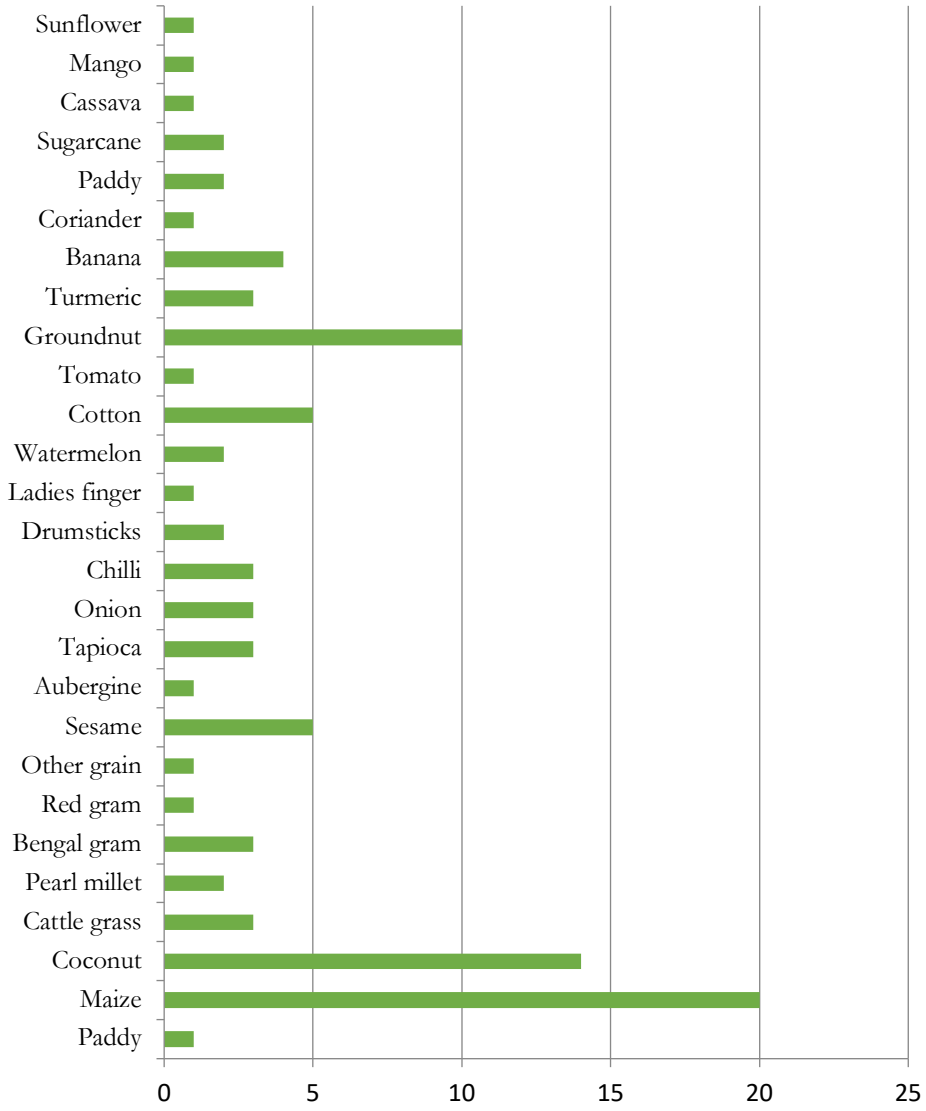


Figure 6.1, author's own, based on fieldwork 2014-2015

As shown in Figure 6.1, within cropping patterns that included tobacco, the most common crop was maize, followed by coconut. Groundnut, cotton and sesame were also key cash crops, followed by a number of other cash and food crops that varied according to region and even village. Coconut was cited repeatedly as a 'new' crop, and the spatial disaggregation of coconut was particularly notable, 81% of those reporting coconut as a crop were located in the 'central' zone of my research, in villages near Kangayam. Koduvai and Palladam, thus located in the industrial heartland of Kongunadu.

With regards to class, it is also worth noting the complex production relations comprised within tobacco markets, and how these were represented in my sample[102]. As outlined previously, farmers are also able to take on value-adding activities by curing their own tobacco in the case of Sun-cured tobacco, or rather within the Sun tobacco market as it will be understood henceforth. Farmers that cured and stored their own tobacco undertook very different activities[103] to those that sold green (pacche), as they were able in many cases to store tobacco and thus bargain with traders over price, where green tobacco was highly perishable, offering these farmers far less in terms of bargaining power. Further, there were different stages of curing, where some farmers undertook partial curing, enabling them to access higher prices of marketed leaf, but not to store tobacco and wait for the low season. Conversely, a number of farmers identified as being primarily wage labourers that intermittently cultivated their land and cured tobacco. Finally, a number of farmers also acted as brokers and even traders in certain years. As such, it is worth noting the different production types within my sample in more detail, as outlined in Figure 6.2.

Figure 6.2: ***Proportions of types of enterprises/combinations sampled***

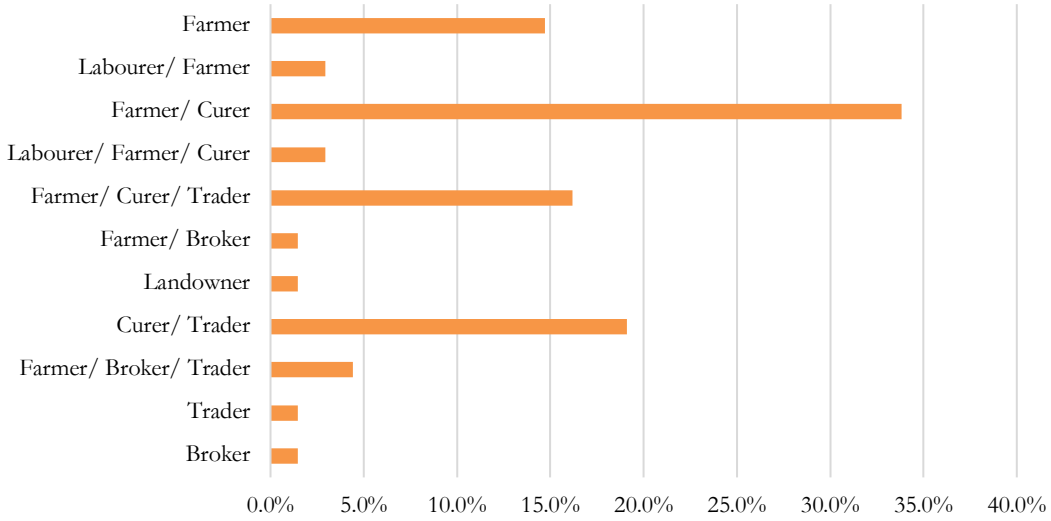


Figure 6.2, author's own, based on fieldwork 2014-2015

Reflecting on the definitions of rural agrarian classes in India as set out in Chapter 2 of this thesis, there are two broad groups that emerge from my data. Firstly, those reporting that they or

[102] A full table of all interviewees is included in Appendix III.

[103] This argument will be fully elaborated in Chapter 8.

members of their household undertake wage labour as well as commodity production to contribute to the household in certain years are understood to be PCP, this comprised 6% of my interviewed sample, and classification is based upon reporting of both farm and off-farm wage work. Secondly, different types of capital emerge, these are households that are able to profit though commodity production, again both farm and off-farm, and comprise farmers, traders and petty industrialists that continue to undertake a minimal amount of farming and trading. In relation to the categorisation in Figure 6.2, PCP were to be found among the 'Labourer/Farmers' and 'Labourer/Farmer/Curers', as these groups reported undertaking waged labour alongside farming as a main livelihood strategy[104].

The majority of those interviewed were farmer-curers, meaning that they undertook curing and sometimes storage of their own tobacco and sold this to Sun tobacco markets. After this, the next most represented group were curer-traders – these were traders that amassed green tobacco and cured it themselves, before storing it and selling it on, and these were largely from the Jaffna market, where curing is always large-scale. These agrarian actors thus offer a sense of the complex and varied material relations that constitute the tobacco market.

Figure 6.3: ***Caste composition of my sample***

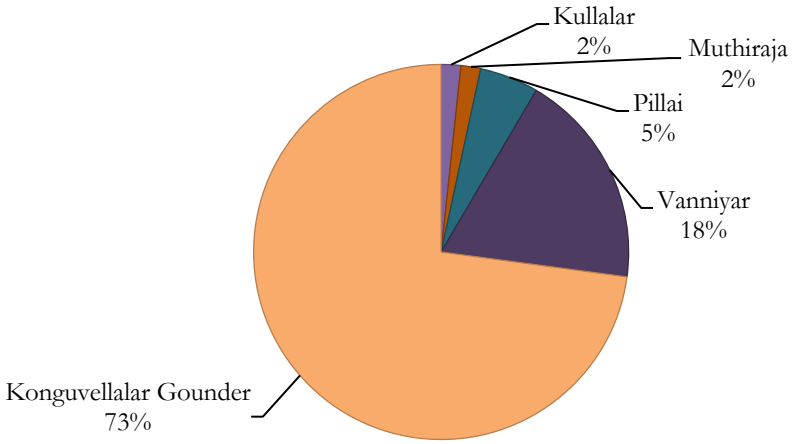


Figure 6.3, author's own, based on field work 2014-2015

Figure 6.3 shows the caste composition of my sample. Tobacco farmers and traders were predominantly Gounder across all districts except Salem, where they were predominantly Vanniyar. There is no district or state-level census data for caste composition from the 2011

[104] It should be noted that 'PCP' was an inherently unstable category, as several farmers and farmer/curers also indicated that they had undertaken significant amounts of waged work in previous years, whilst several PCP indicated that waged labour was a more recent phenomenon for them.

census, and so I am unable to verify how this compares to regional norms, however research in the region speaks to there being a greater number of non-Gounder farmers in Kongunadu's agriculture than is evident in my sample – both Heyer (2000) and Damodaran (2008) cite the existence of Naidus in rural Kongunadu over the past two decades, but these were entirely missing from my sample. Further, Carswell and De Neve also doing research in villages between Coimbatore and Tiruppur in the past decade (2013c), cite the existence of Nadars and Mudaliyars, part of the 'Backward classes' group, that were also not evident in my sample. I met and spoke with a number of farmers and traders from these castes, and none were involved in tobacco production. As such, the dominance of Gounders among tobacco producers and traders in four out of five of Kongunadu's districts speaks to a caste monopoly over the production and exchange of this crop. This very much echoes Harriss-White's findings in the 1980s, where she argues that; 'The commercialisation of tobacco is also the story of a caste monopoly' (1996, 238), as highlighted in the previous chapter.

With regards to gender, 65/68 of the farmers and traders that I interviewed were male, as upon asking if I could interview someone about tobacco farming or trading, it was always the male household head that stepped forward. In the case of the three women, their husbands were out and so they agreed to speak with me, however unlike male respondents, they did not identify individually as farmers (vivasaayer), rather continually referred to themselves as a collective farming family. This contributes to an invisibility of women's work in official data collection (see Neetha 2006).

Finally, it should also be stressed again that subsequent analysis draws heavily on observational data and informal conversations with labourers, farmers, traders, and other agrarian actors. As a native Tamil speaker and a Tamilian that hails from a rural background, such informal data collection was both crucial and relatively straightforward. I was able to join in hundreds of informal conversations and meetings, attend small functions and events, and receive hospitality from farmers, traders and labourers. As such, insights gleaned from such encounters offer a rich and detailed basis from which I am able to analyse dynamics.

3. Livelihood change among tobacco farmers

In keeping with farmers in Kongunadu more broadly, farmers cultivating tobacco were looking to leave agriculture behind. 67 out of 68 farmers interviews indicated that they or their children would leave farming for good, and this was greatly substantiated through further conversations and observational data. In order to begin unpacking why the majority of tobacco farmers and traders were looking to leave agriculture behind, I focus here on self-representations by these farmers and

traders explaining their motivations, looking in particular to the four most prevalent tropes that emerged from narratives of livelihood reorientation: the increasing hard work associated with agriculture, increasing risk and insecurity associated with farm-based livelihoods, climatic distress and its impacts upon agricultural commodity production, and a shift in aspirations among women in agrarian castes to leave the farm behind. I focus on such accounts from the ground in order to highlight the voices of farmers and traders themselves, before examining their self-representations through a political economy analysis of tobacco production in the rest of this section. However I also highlight here what Chari has called 'the social historian's conceit of writing 'history from below', because as he suggests, 'Gounder toil can be taken at face value as entrepreneurial utopianism' (Chari 2004, 276–77). Therefore, self-presentations are taken both seriously and critically, and are shown to be embedded in and produced by wider hierarchies of power.

The first trope to emerge in narratives of livelihood reorientation was that of difficulty – kashtam – in farming, and of toil – ulaippu – linked to agrarian lifestyles in general. However somewhat contrary to Chari's findings (2004) around how narratives of Gounder toil in this region were renovated to positively explain their social mobility from petty agrarian production to industrial capital, both Gounder and non-Gounder tobacco farmers were clear in their disdain for hard work on the thottam, as evidenced by the following statements:

> *"Farming is too difficult - that's why everyone in it is changing their livelihood. We got stuck with this because our parents did it, but now in the next generation people are moving on" (Mr Q, farmer and commission Agent 2015);*
>
> *"Well you are coming here having studied and looking neat and so on, here we are with cow dung on us and the smell of cow's milk, after we bathe in the morning we only bathe last thing at night, there is work all day from the morning onwards for farmers, there is always something to do, you can't keep labourers for everything - we have to work alongside them..." (Mr O, farmer 2015);*
>
> *"We really struggled to even make enough to eat every day, with great difficulty we got to this stage, so if my children can study then so be it - whatever fate has in store" (Mr B, farmer 2015a).*

Farmers in particular and also traders suggested that they did not want their children to have to toil under agriculture as they themselves had, particularly given the better opportunities now available in the industrial and services sectors. Bound up within this discourse was the implicit narrative of bettering oneself among Gounder respondents in particular, where agriculture was

associated with dirt whilst professional careers were 'clean', with such imagery being very much imbued with caste connotations of purity (Srinivas 1969). This is made explicit in the quotation from Mr O, a Gounder, where he questioned whether I and my research assistant, both from upper caste communities, would have undertaken the same dirty work that he had, with the implicit argument being that our caste had prevented us from having to do so. The continual suggestion was therefore that social mobility out of agriculture also represented a more fundamental shift out of the previous Gounder caste identity of agrarian ulaippu (toil), 'renovated' into their work histories as industrialists from the late 20th century (Chari 2004, 227). The new move into professional, salaried jobs came without the familiar rhetoric of ulaippu which had been so central to male, Gounder narratives of their success in preceding decades (Chari 2004). Instead, it represented an upward class mobility, and a reworking of caste identity, from agrarian ulaippu to an apparently sanitary, urban existence.

Linked to the shift in caste identity, and in fact driving it to some extent is the will of Gounder women in wanting to leave behind the hard work and long hours of thottam farming and move to the apparent ease of an urban lifestyle, based on salaried job(s)[105], as shown in the subsequent statements, all from Gounders:

> *"Our difficulty is finding girls –That's why we put sons through education, it's not even for them to find a job afterwards, the son has to study somehow so that he can find a girl tomorrow… The girl's family isn't looking, the girl is looking – that's the problem, they are thinking: "This farming it's too difficult – why should I have a difficult life?" The girl wants to live an easy life in a town… that's what I think". (Mr K, farmer 2015)*
>
> *"For our daughters, whenever they see someone who has left farming they jump at the chance to marry them and get out of this [farming]!" (Mr F, farmer 2015)*
>
> *"…the thing is, families won't give daughters in marriage to men who are doing farming, in all areas, however lucrative the farming is - for those that earn Rs. 5,000 a month to the ones around here that ear Rs. 1 lakh per month, farmers don't get wives."(Mr P)…"They all want boys who have studied because the girls have all studied!" (Mrs P) (Mr and Mrs O, farmers and traders 2015)*

[105] Whether or not women undertook salaried jobs in an urban setting, they generally commented that running a house (household and reproductive labour) was easier in an urban setting than in a rural one.

In each case, parents from the Gounder community are suggesting that their sons will not be able to find a wife if they remain tied to the thottam. Bound up within this are a number of issues worth unpacking. Firstly, Heyer's research (2017) has highlighted a material driver behind increased female agency among the Gounder community with regards to marriage choice. Her research suggests that the Gounder community may have undertaken female foeticide during the 1980s, practiced alongside decreased family sizes of strictly two children in order to ensure smaller families, comprised of sons and not daughters (Heyer 2016b). This is due in large part to the dowry and marriage expenses incurred with daughters, and the need to have subsequent generations to pass assets onto within a predominantly patriarchal society (Heyer 2016b, 2016a). As such, the sex ratio among current Gounder youth is skewed in favour of men, and women are relatively scarce on the marriage market. The result of this is that young men face a shortage of suitable women to marry within their own community, and concurrently women are afforded some increased decision-making power in choosing their marriage partners given their improved bargaining position. In light of this, it was repeatedly stated that young women did not want to marry into agricultural households. Younger Gounder women that I spoke to informally corroborated this, stating that life on the thottam involved hard, manual labour, an insecure, agrarian income, and few leisure activities, and this extended to the village as a space for residing. Instead, younger women looked to move to towns, and higher education among young Gounder women in capitalist farming households was already the norm, thus higher education and professional qualifications were seen as increasingly necessary for potential husbands.

The second issue is around mobility, where women consistently linked agrarian life with confinement, and urban life with greater mobility. Women's relative ease of movement in urban as opposed to rural areas in Tamil Nadu was continually cited among a minority of young women that I spoke to informally. Heyer writes that many better-off Gounder women in her study village had attended college by 2008/2009, allowing them increased mobility from traditional village spaces (2016a). She contrasts this with 1981/1982, when women were far less likely to go beyond primary education, and were very much tied to the nuclear household (Heyer 2016a). Thirdly, women also mentioned the sheer amount of labour involved in agriculture, and the anti-social hours in particular for men and women – late night and early morning irrigations, ploughing and harvesting, and generally early mornings and early evenings, all of this for seven days a week. This contrasted the uniform hours of work in towns and cities, and the time left for leisure in evenings and weekends. Finally, the physicality and dirtiness of agricultural work was cited in contrast to office work, which was seen to be out of the sun (thus allowing women and men to avoid darkening

their skin), and clean by contrast. Tied into this narrative again was a strong caste consciousness of upward mobility into the types of labour typically dominated by upper castes (Srinivas 1969).

A third and very strong discursive trope was that of risk and uncertainly – agrarian lifestyles were repeatedly linked to precarity, whereas salaried, urban jobs were seen as secure, as highlighted in the following statements:

> *"If there was a standard margin in this business they may come…" (Mr P, farmer and trader 2015b)*

> *"After my generations no one at all will come to agriculture, ask in any area they will tell you the same thing…why? Because you only get loss in this you don't get profit, it's a really difficult livelihood..." (Mr Q, farmer and commission Agent 2015)*

> *"There is a knife hanging above our heads in this business, who would come to it?! It can drop at any time" (Mr BG, trader 2015)*

> *"We don't want them to come to farming at all, we want them to find jobs... it's only worth it if you get profits, how many days can you live with just losses?" (Mr and Mrs C, farmers 2015)*

This discourse of risk/insecurity came primarily from capitalist farmers, who were still able to accumulate from agriculture, but found that there were easier frontiers for accumulation or remuneration in industrial or professional livelihoods. The repeated trope of 'losses' thus needs to be understood within the context of self-presentation (Chari 2004), where flourishing farmers in this region that have been used to high levels of accumulation and continual reinvestment in productive forces are not able to sustain this. Furthermore, as Athreya et al (1990) show, the vagaries of dryland farming in this tract have long been linked to risk and uncertainty. The more recent shift was thus largely connected to the increasing opportunities in non-agrarian sectors over the past few decades, and specifically salaried work within the services sector, which provides a ready contrast and viable alternative to dryland farming and its inherent risks.

The final trope that came up in a minority of farmer and trader narratives was around the climate. Notably, few people specifically cited climatic reasons as an impetus for leaving agriculture, captured in the following statements:

> *"If there are water and profits he [Mr S' son] will come to farming, you need that much right!" (Mr M, farmer 2015b)*

"If water is good then some people finish studying and come back to farming, but if you don't have a good water source then it is more difficult... in our area, only if there is really heavy rain and water comes into our wells can we do anything at all" (Mr W, farmer and trader 2015)

Only two respondents – one farmer and one farmer-trader – directly suggested that rain and well water played a part in their children's decision not to return to agriculture. Where rain is available 'we can do anything at all' said Mr W, farmer and trader, a marker of how powerless climatic vagaries left these farmers. Yet remarkably few others cited this as a reason, despite the overwhelming push away from agrarian livelihoods across my respondents.

In the narratives of the various farmers groups involved, livelihood reorientation is represented as a choice, driven by shifting aspirations away from agrarian work, tied to constructed and evolving identities of caste, and fuelled by increasing opportunities in the non-farm sector, driven over decades by economic transformation and state policy as outlined in the previous chapter. Yet tied to narratives of the allure of non-farm work are those expressing disdain for agriculture, and within this, I contend that ecology has played a role in shaping livelihood reorientation and through this, deagrarianisation more broadly. The next section thus ties together the preceding discursive tropes – hard work, marriage preferences, risk and ecology – with the overarching frame of this thesis by trying to understand how political economy and its ecological dimensions have played a role in shaping the move away from agriculture.

4. Locating and appropriating nature in tobacco production: water, labour, and broader agro-ecological traits

The production of tobacco involves ecology as general preconditions, means of production and special contributions (Burkett 1996, 1999). Focusing on the second of these, tobacco cultivation requires fertile soil, water, and the seed or HYV itself. The challenges in appropriating these natural forms of wealth have been documented in the previous chapter, as their historical appropriation has led to increasing investments being required to continue doing so. The state has also been shown to assist in developing and subsidising such innovation, and in therefore enabling the appropriation of the environment to be rendered cheaper. In the case analysed here, one can observe shifting dynamics of appropriating nature through a focus on water, on labour exploitation and the articulation of this with appropriating nature, and on the tobacco HYV as an agro-technology. These shifting dynamics within agriculture render tobacco less attractive as a means of remuneration and accumulation. Tellingly, tobacco producers across all five districts surveyed

reported significant problems with regards to water procurement over the past decade or so, comprising 76% of the sample[106] altogether. Such difficulties had been exacerbated over the two years prior to my research, as rainfall had decreased significantly in relation to the regional average. It is important to stress however that this picture varied greatly across the different regions of research, and from year-to-year.

As shown in Table 6.4, in 2012/13, the first of two years of low rainfall in Kongunadu, farmers generally relied heavily on well irrigation, as canals were under-fed by rainwater sources, albeit at varying levels across the three districts of Kongunadu.

Table 6.4: ***Area irrigated by different types of irrigation 2012/13 (in Ha)***

District	Canals	Wells	Tanks	Area irrigated by other sources
Coimbatore	14.3%	85.4%	0.0%	0.3%
Tiruppur	19.8%	79.2%	1.0%	0.0%
Erode	7.9%	91.8%	0.1%	0.3%

Table 6.4*,* sourced from (Government of Tamil Nadu 2013a)

In the case of Erode, the Karnataka state government also withheld water from Tamil Nadu in this year, thus the Kaveri canal system did not receive the requisite amount of water to flood its canals (Lakshmana 2016). Yet as shown in Table 6.5, irrigation patterns were quite different in the previous year. In 2011/12, rainfall was above the average for the region[107] and as such, canals in Erode and Tiruppur were filled more easily and thus used more readily, and Karnataka released more water to Tamil Nadu as adequate rainfall in the south-eastern districts of this state meant that farmers there were able to source requisite amounts of water from the river before it crossed into Tamil Nadu[108].

Table 6.5: Area irrigated by different types of irrigation 2011/12 in Ha

[106] This is taken from 51/68 of the respondents that offered data on this issue.

[107] See Figure 4 in Chapter 5.

[108] As Lakshmana (2016) writes, the water dispute between the two states worsens in years of poor rainfall in Karnataka.

District	Canals	Wells	Tanks	Area irrigated by other sources
Coimbatore	19.4%	79.6%	0.0%	1.0%
Tiruppur	33.9%	66.1%	0.0%	0.0%
Erode	52.4%	47.2%	0.0%	0.3%

Table 6.6, sourced from (Government of Tamil Nadu 2013b)

Whilst such vagaries are characteristic of this region going back decades (Athreya, Djurfeldt, and Lindberg 1990), they do speak to the fact that state-sponsored technologies, in this case canals, are no longer always able to overcome such vagaries, but are largely subject to them in enabling farmers to appropriate water. It has historically been wells, which draw on groundwater, that have enabled cultivators to overcome such vagaries, yet today, farmers in a number of villages reported rapid declines in groundwater levels, leading this form of irrigation to be increasingly expensive. Farmers generally suggested that whilst deepening wells had long been required in this tract, the frequency of such re-borings, and instances of wells running completely dry despite deepening, had particularly increased over the past two decades.

Field data revealed that groundwater depths varied across Kongunadu, with stark differences between villages which fell into river basins[109], and those further away. In the Kaveri[110] basin for example, farmers reported fewer problems with regards to water, with bore wells of 800-1,000ft, primarily re-bored within the last five years, being able to access ample water in the period of my research. Yet in parts of Erode district located over 10km away from the Kaveri, well depths went down as far as 1,500ft to find groundwater, and farmers reported that water was already receding at this depth. Re-boring thus did not guarantee water. The business of boring or re-boring a well was itself a complex and expensive one. There was little way of knowing prior to actually boring a hole whether the water table would be accessible at specific points on a thottam, consequently there was a booming industry for local holy men and spiritualists to undertake pujas/ rituals to ascertain where best to bore a well. As Mr N, a farmer and curer stated, when boring a well 'it's just faith, like praying to God' (Mr N, farmer 2015b).

[109] There were few similar areas across the region of my research, for example a few villages in close proximity to the Amaravathi river in Coimbatore and Dindigul districts, or villages located alongside state canal systems in Dindigul district again.

[110] The Kaveri river comes south into Salem district from the northern border with Karnataka, and then continues South into Erode district, going through the towns of Bhavani and Erode before veering sharply east towards Thanjavur district and into the coastal delta area.

The uncertainties of this process meant that for capitalist farmers and petty producers, capital investments in boring a well represented a highly risky venture, where it used to represent an investment to mitigate against the risk of surface and rainwater access[111]. Class and caste mediated the way increased costs of irrigation and uncertainties in undertaking investments were experienced. For capitalist farmers, whilst basic reproduction was not a concern, the inability to sustain or increase profits due to the risk of groundwater extraction was. For example, Mr P, a Gounder capitalist farmer and trader in Erode, describes the process of finding groundwater to set up a bore well (Mr P, farmer and trader 2015a);

> *'There are meters used by engineers [to find groundwater]… But an astrologer comes as well. They use lots of things to tell whether there is water in a particular spot – they use a stick-like device, jewellery, they look at existing water, they look inside coconuts…'*

The novel combination of both western scientific knowledge and indigenous, religious knowledge in order to seek a new space for the appropriation of nature offers a profound insight into the level of insecurity that farmers experience. They are drawing upon all available forms of security – western science and local religion – in order to mitigate the risk inherent in investment for appropriating water. Mr P (quoted above) is a large farmer, with 10 acres of land, and has invested in 13 bore wells over the past two decades, with depths ranging from 850ft to 1,000ft (Mr P, farmer and trader 2015a). The cost of these wells is very high, across my sample it varied greatly depending on regional geological profiles and depth, with respondents stating rates of ₹20,000 – ₹100,000 just to bore the hole. Once bored, if there proves to be water accessible, it cost ₹60,000 – ₹100,000 further to install a motor and obtain water, though electricity to run it remained free. Mr P's cultivation costs have continually risen and so he has increasingly turned to curing and trading other farmers' tobacco, however he claims that there is no accumulation even in trading, 'You don't get profits, you get loss' (Mr P, farmer and trader 2015a). Mr P earned ₹400,000 in profits from all his farming in 2013/14, and derived further unspecified income from his trading and remittances from his children, but complains that he has to continually spend this on boring or re-boring wells to sustain cultivation (Mr P, farmer and trader 2015a). Rather than accumulating, Mr P is investing increasing amounts to sustain the same levels of production. He has therefore ensured that his children leave agriculture behind – his son is a technical officer in a blood bank in Erode town, his two daughters are married to men that also work in the non-farm sector in

[111] This refers to arguments made by the Coimbatore District Gazetteer in the 19th century which identify wells as a source of security given the uneven levels of rainfall in the district (Baglia 1966, 268); see Section 3bii in Chapter 4.

nearby cities, and so he is content that none of them will have to return to farming. However Mr P himself concedes that he will live out his days on his thottam, 'Even if a bore costs a lot money, we don't know anything else… we can't leave farming and do anything else' (Mr P, farmer and trader 2015a). The increased risks inherent in investments to appropriate water have pushed the next generation to find better paths to earning, whilst age and also caste inheritance keep him tied to his rural land, and to tobacco, 'Farming is who we are – it is our community's heritage… my grandfather planted tobacco, my father planted tobacco and now I am planting tobacco…'.

Another similar example is Mr AG, a *Gounder* capitalist farmer, who owned 25 acres in a Salem village located 12km from the Kaveri. He planted 10 acres of tobacco 2013-14, and despite the drought that riddled the rest of the region, Mr AG's numerous bore wells (he wouldn't reveal how many), enabled him to make ₹1.2m in profits after curing and selling his tobacco, due to the high rates the crop fetched in this year. He also used drip irrigation and thus saved on labour costs for watering, though this did reduce his cropping density as drip requires plants to be 3ft apart, and other farmers reported that they were able to plant Oosi-Kappal, the HYV of choice in the North-East, as little as 2ft apart. Mr AG was able to continually invest in re-boring his wells and running motors, and he reported no problems at all with accessing water, a stark contrast to villages further away from the Kaveri in the same district. Mr AG was unmarried, and lived with his mother and grandmother, whilst his brother was studying to be a doctor in Chennai. Despite his success however, Mr AG was looking towards his brother's future income to continue supporting the household, shared familial income being quite common in Gounder households, as he cited 2013/14 as a very unusual year given the high rates that tobacco fetched. Further, he put his lack of marriage down to his occupation, "No one gives their daughters to farmers" (Mr AG, farmer 2015). Therefore whilst Mr AG was successful in profiting from tobacco, he was not committed to reinvesting in agriculture on a long-term basis, and had submitted to a reduction in tobacco yields from having installed drip irrigation in order to lessen his own workload in having to manage wage labourers.

Mr P and Mr AG represent a form of livelihood reorientation that was notable among capitalist tobacco farmers – a slow reduction in enthusiasm and investment in agriculture. Both were able to keep up with the levels of investment required to continue appropriating water and profiting, however profits did not increase as they were unwilling to keep up with the levels of investments required to expand production, looking instead to a future shift away from agriculture. Conversely, there are petty producers for whom the increased costs of irrigation have rendered any profits difficult. For example, in one Vanniyar tobacco-producing village in Salem, located 20 km from

the Kaveri river's edge, four PCP households from the same extended family had clubbed together to form a kootam or caste-based group, where they jointly invested in the boring and maintenance of four bore wells. Between the four wells, the farmers were generally able to recoup sufficient water each year in order to each cultivate on a marginal scale on thottams of 0.5-2 acres each. In 2011-2013 however, Mr D, one of the Vanniyar PCP in the kootam, reported having no water at all in any of the wells. As such, two of the four wells had been re-bored to 900ft at the time of my field visit in 2015 January, and were supplying ample water for all four thottams at this depth. The producers were only able to use one of the wells at any given time due to the expense of running the motors required to obtain water, but this was sufficient to provide irrigation for all four thottams. In order to recoup part of these investments, the petty producers ran a home tailoring business where they stitched shirts, trousers and sari blouses at piece rates. They also hired minimal wage labour for agriculture, choosing instead to work on each other's thottams and undertake labour-intensive tasks such as planting and harvesting on a small-scale of 0.4 acres/ day.

Mr D earned ₹76,000 from 0.5 acres of tobacco planted in 2013-2014, when prices were at an all-time high of up to ₹200/kg, however by the time of my fieldwork (a year later), they were down to ₹50-75 in this region, and so he was 'not sure what will happen'. Mr D's earnings from 2013-14 were was quite unprecedented in recent years, and only resulted from the price spike of tobacco as a result of decreased supply following three years of drought, coupled with the kootam's continual investments in deepening bore wells. Mr B, another member of Mr D's family kootam who co-cultivates the land with Mr D stated 'We really struggled to even make enough to eat every day, with great difficulty we got to this stage, so if my children can study then so be it - whatever fate has in store' (Mr B, farmer 2015a). Mr D concurred, 'Everyone is now looking to get their children to study and get jobs' (Mr D, farmer 2015). These farmers relied heavily on credit from local moneylenders (which they would not discuss in any detail with me), using this and income from tailoring to continue investing in irrigation technologies simply to sustain themselves, not to profit, from tobacco production. Whilst they displayed the same lack of enthusiasm for farming that capitalist farmers in the region did, they did not have the same levels of access to non-farm income as Gounder capitalist farmers would, given that Gounder farmers were very likely to have a member of their extended family engaged in industrial production, where Vanniyars were not[112]. As such, these farmers were far bleaker about their prospects in being able to keep up with continued investments in well construction. Their children were younger and so it was unclear

[112] This follows from evidence from Mahadevan and Vijayabaskar (2014), Chari (2004), and my own research findings, that petty Gounder industrialists remained tied to agriculture through familial links, and that agrarian/ industrial accumulation was fraternal across such boundaries.

whether they would go on to take up non-farm jobs and thus ensure that they could leave agriculture behind, however Mr D was clear that they would do anything, including selling their land and investing in a small industrial unit, to ensure that their children did not remain in farming.

In a few cases, producers had been entirely unable to procure groundwater in the two years preceding my research, and thus PCP had taken to full-time wage labour and left land fallow as a result. Mr N, a labourer and farmer from Tiruppur district, moved to the area from Dindigul where he had been a wage labourer, and earned enough over the previous two decades to purchase 5 acres of land and one bore well, thus reproducing himself through a combination of commodity production and wage work. Despite this initial shift to petty producer, Mr N is now back to primarily reproducing himself as a labourer, 'I still work as a wage labourer now, if I didn't I couldn't put any food on the table! There is no water in our well at the moment which is why I have leased out our land' (Mr N, labourer and farmer 2015).

Many of the farmers cited a specific shift over the past two decades with regards to their ability to access water. The removal of government support for both canal extension and well subsidies, the water dispute with Karnataka over Kaveri water, the increasingly rapid decline of the region's water table, and the related expenses incurred in having to continually deepen existing wells or bore new ones, were all recurrent themes in explaining why water was more and more expensive to procure. Linked to this was the issue of risk, which was seen to be both a long-term problem in dryland farming, and an issue that had been exacerbated recently due to the increasing precariousness of investments in bore wells. The outcome was that both wealthy and struggling farmers were losing interest in tobacco as a crop that enabled remuneration, and as a result of this, aspiring to new paths out of farming. This picture was mediated by both caste and region, with villages near river basins suffering less in terms of groundwater access, and Gounder households more likely to comprise at least one member engaged in industry and thus providing non-farm income into the household from an earlier generation. Yet the overall picture was one of deepening insecurity combined with increased investments in the procurement of water, rendering tobacco production increasingly expensive and risky.

The other area which has drastically increased the costs of cultivating tobacco is labour. As outlined in the previous chapter, this increase in costs is both due to an increase in wages, and an increase in the conditions and bargaining power of labour. This has led to difficulties in both procuring and paying for sufficient labour. Tobacco production comprises several labour-intensive activities, and socially-necessary labour is partly driven by the requirements of the land. Tobacco seeds are sown by hand, and once saplings are 30 days old, they are transplanted to be 2-3 ft apart along

large, vertical ridges to allow for ridge-irrigation. Once planted, ridges are normally rebuilt two times during the crop's duration. Land is weeded at 30 days and 60 days, and depending on the region, a third weeding is sometimes necessary. At 90 days plants are 'topped' and suckericide is applied, and at 120 days from seed, the plants are finally harvested using scythes and laid out on the ground for a night to dry out, activities beyond this point differ according to curing. This does not include significant pre-planting labour in the form of ploughing and manure applications, and also post-harvest labour if farmers choose to undertake any form of curing.

Table 6.6: ***Average labour costs for cultivation activities per acre in INR***

Planting seeds	Planting seedlings	Weedings	Irrigation	Ridge-building	Topping	Harvest	Overall cost/acre
₹ 3,000.00	₹ 3,144.26	₹ 6,087.65	₹ 6,860.00	₹ 4,321.29	₹ 5,794.12	₹ 13,342.75	₹ 25,696.91

Table 6.7, author's own, based on field findings 2014-2015

The costs for these activities, and overall labour costs/acre are summarised in Table 6.6, which shows an average across all regions[113]. There was notable variation in labour costs across the five districts under research, due to a number of factors: local wage rates, amount of labour by farm family themselves, soil type, and type of irrigation source and method. Apart from soil type, the two most significant factors were local wage rates and amount of labour undertaken by farm family. Where families undertook significant own labour, the cost/acre went as low as Rs. 12,600 (Mr H, farmer 2015). Overall however, farmers reported that the cost of labour is relatively high in relation to other crops, particularly for those farmers choosing to take on curing, thus it is clear why tobacco is not cultivated by marginal farmers for whom this level of labour would be untenable given the scale of their plots.

Wage rates also varied by region. As shown in Table 6.7, peak wage rates[114] varied widely across the surveyed regions, and this in turn was linked to a number of factors such as levels of labour absorption by industries in these regions, and levels of bargaining power that labour held, related to the different factors outlined in the previous chapter which are happening at a broader, regional

[113] This is calculated from a data set comprising 25/68 farmers that gave full data for labour costs across different activities.

[114] 'Peak' rates refers to the rates offered for fairly specialised tasks within the tobacco cultivation process, such as topping and harvesting, which cannot be performed by any agricultural labourer, only those that have some experience of working with tobacco.

level. Labour rates also varied across gender, with women consistently being paid one-third to one-quarter less than men, though women's wage rates also rose alongside those of men[115].

Table 6.7: Peak wage rates reported by tobacco farmers across all five districts in field site

District	Coimbatore	Dindigul	Erode	Salem	Tiruppur
Peak male labour wages	₹600	₹500	₹400	₹400	₹300
Peak female labour	₹300	₹200	₹250	₹200	₹200

Table 6.7, author's own, based on fieldwork 2014-2015

Overall, labour was a key area of concern for farmers, however this went beyond rising wage rates alone. Whilst the cost of labour was certainly an issue, so too were the shifting power relations between capital and labour more broadly. Gounder and Vanniyar farmers complained of a culture change among labour, with less 'respect' (mariaadu) for farmers, and greater 'arrogance' when it came to agreeing to working conditions. There were no more permanent farm servants (pannai-aal) by this time, and thus all farmers were forced to purchase wage labour at market rates. Specific areas of complaint were:

- *Working hours* – labourers worked only to the agreed hours (one day (naal-kuli) is 8am-2pm), and they demanded payment for over-time;
- *Food* – in many areas labourers demanded a hot lunch or afternoon snacks to be provided by the farmers;
- *Use of labour contractors* – these were common in certain areas and demanded rates according to tasks and number of acres, so for example, harvest for 2 acres was paid as a composite sum rather than day wages to individual labourers. Farmers perceived rates under contractors to be higher, but in parts of Erode and Dindigul, farmers suggested that they could not find sufficient labour without going through such contractors;
- *Caste pretensions* – farmers complained that even labourers were now seeking higher education for their children, leading to a shortage of labourers under 30 in many regions. They also complained of an increasing shift in labourers' attitudes, citing a lack of respect for farmers, and increased sensitivity over the correct caste terminology used to refer to Dalit castes as evidence of this.

[115] The division of labour in tobacco production is highly gendered, for example, planting ridges is confined to male labour, as is the second and third weeding, whereas the first weeding is undertaken by women. Yet tasks are comparable in terms of time spent across genders, thus lower wage rates for women represent a sustained form of surplus appropriation along gendered lines.

These complaints speak to the fact that labour in the region now enjoys better working conditions, and caste-based forms of labour control are waning to some extent. Driven by the macro-level shifts largely in the non-farm income as explored in the previous chapter, agrarian labour in Kongunadu enjoys greater bargaining power, higher wages, better working hours and greater respect. As one farmer from Coimbatore district noted, if you refer to labourers using a derogatory term[116] for Arunthathiyars, one of the Dalit caste groups, which used to be a commonplace term among Gounder farmers; nowadays 'that's it - they won't even come here to work tomorrow!' (Mrs W, farmer 2015). These shifting caste relations limited the ability of Gounder and Vanniyar farmers to continue the severe forms of exploitation that were historically prevalent and engendered along the lines of caste-based discrimination. Consequently, farmers were forced to pay increasing wages to labour, thus increasing their costs of cultivation.

Issues of labour scarcity, high wages and labour control were further exacerbated in the case of tobacco, as it required labourers that were accustomed to it, and willing to work with it. Handling green tobacco leaves without gloves over long periods of time has been identified to cause 'Green Tobacco Sickness' – a form of nicotine poisoning caused by absorption of nicotine through the skin (Achalli, Shetty, and Babu 2012). Yet agricultural labourers across the five districts in my field site handled plants with no protection for their skin, I did not see a single producer or labourer wearing gloves throughout my research. Furthermore, labourers repeatedly reported dizziness, vomiting, fainting and rigors, all of which are noted symptoms of 'Green Tobacco Sickness' (Achalli, Shetty, and Babu 2012). The implications of this with regards to the exploitation of labouring bodies will be further explored in subsequent chapters, however I highlight it here as the driver behind labour's unwillingness to work with tobacco, particularly among newer labourers. This unwillingness exacerbated issues of labour scarcity and high wages among tobacco producers, due to labour-absorption by nearby industries, with a number of tobacco-related activities being deemed 'specialised' and thus warranting increased wage rates to incentivise rural labour.

The impacts of increased wage rates and difficulties in procuring labour varied across producers of different classes. Capitalist farmers viewed rising labour costs as unsustainable for longer-term accumulation, and poorer farmers took on increased levels of work on their own *thottams,* as well as taking on wage work in other farms when necessary, to reduce their reliance upon wage labourers and pay for wage labourers respectively. There were also numerous intra-caste arrangements among such farmers to try and avoid market rates. In one village in Erode for

[116] I leave the term out here as it carries highly derogatory connotations which I do not wish to inadvertently endorse through its use.

example, six Gounder petty commodity producer households worked on each other's thottams during the harvest season, thus enabling each to undertake harvest and curing without the need for hired labour. Furthermore, tasks were split up over several days to enable such self-exploitation. On a one-acre thottam in Salem, a Vanniyar household harvested 0.1-0.2 acres each day, thus enabling them to undertake all labour themselves. These arrangements were exhausting for such petty commodity producers that were largely over 40, and there was a general sense of despondency about agrarian life, thus again, the next generation looked to undertake wage work in industrial settings or even gain a degree to leave the hard work of the thottam behind.

Besides water and labour, broader agro-ecological factors are also crucial to explain trends in tobacco production. Specifically, despite the difficulties of farming, tobacco's short duration and drought-resistance are key attributes explaining its sustained favourability among producers. Tobacco's duration means that despite the need for weekly irrigation, farmers only need to worry about water for three months, and its drought-resistance means that its quality doesn't degrade significantly even if irrigation is less than adequate. For example, Mr Q, a large farmer, planted six acres of tobacco in 2013-14 despite having suffered from three years of low rainfall in the region. He has three bore wells on his property, each measuring 600 ft deep, and all three ran dry during the rainy season in 2013-14, thus he had to purchase water at a rate of ₹7,000/ acre from a private water company in order to cultivate tobacco for the last 30 days. Mr Q invested ₹162,000 on tobacco altogether last year but maintains that this was the right thing to do, as once he sold the crop at remarkably high rates, he did not suffer any loss, and in fact made small gains (which he would not specify) despite the high cost of cultivation (Mr Q, farmer 2015),

> *"Even if there is no water we plant tobacco - it grows in a short period of time, there is some risk with this crop but you can easily make a profit on it. Most importantly you can make high yield harvests with very little water with this crop"*

Despite delays and insufficient irrigation during its cropping period, Mr Q reported that the 2013-14 crop still grew to a relatively good quality. The HYV's drought resistance thus enables it to develop to some quality despite the increasingly erratic irrigation that plagues Kongunadu, as outlined in a previous section. Farmers reported that under the same conditions, many other crops would dry out, even HYVs, given the longer duration of such crops, and tobacco's relatively increased drought-resistance[117].

[117] As will be explored later in this section, there are also markets different quality tobacco leaves, enabling the development to drought-resistant HYVs to offer further means of accumulation for farmers.

There are also subsidiary markets for different parts of a single tobacco plant in Sun-cured value chains. Tobacco plants contain 10-12 leaves each. When sold to Sun-traders, leaves are graded, 70% are usually graded as Rasi – 1st grade, 20% as Matam – 2nd grade, and 10% as Kursu – 3rd grade. The rate for leaves increases in relation their grade, with Rasi leaves fetching twice as much as Matam, and Kursu fetching half again. The HYV's drought-resistance means that even though the plant may dry out to some extent in the face of water shortages, leaves remain marketable at lower grades, thus tobacco offers lesser remuneration under drought conditions but does not dry out entirely like other cash crops such as maize and cotton. For example, in 2013-14 cured Rasi tobacco[118] sold for up to ₹200/kg, depending on the region[119], whilst cured Matam sold for ₹100 and Kursu for ₹50. As such, producers that were unable to irrigate plants fully were still able to cure and sell leaves for ₹100/kg or ₹50/kg, recuperating expenditure to some extent and potentially profiting. Sun-cured tobacco's drought resistance and grading system therefore offers a pathway for limited remuneration, and occasionally excellent remuneration, in the face of perennial water insecurity. As one Gounder petty commodity producer stated, 'No matter how much water there is, we *always* plant tobacco' (Mr M, farmer 2015a).

The state's role in having historically facilitated accumulation among tobacco producers is notable here. The crop's drought-resistance is the result of the state taking on the role of agricultural research and development, continuing to develop HYVs every decade since the mid-1970s and distributing these at subsidised rates through the CTRI. The CTRI has developed specific HYVs to suit the different soil types across Kongunadu, and provides ongoing advice to farmers from the CTRI farm located in Dindigul district and through field visits on how to improve cultivation and treat issues like pests. The CTRI's development of suckericide in the past decade, highlighted earlier in this chapter, also enabled farmers to reduce labour requirements for continually topping the plant. State involvement here drives farmers to be able to produce tobacco with less water and increased quality, enabling them to appropriate soil wealth with decreased appropriation of water and thus levels of capital expenditure. Therefore, unlike other key state investments in bore wells, pump sets and rural electrification which enabled farmers to appropriate increased amounts of water over a shorter space of time, tobacco HYVs represent a technology that mitigates costs through deacreasing the required appropriation of nature in order to enable commodity production. Yet conversely, HYVs also require the application of chemical pesticides and

[118] Sold after three months of Sun-curing with no extra storage.

[119] When sold 'green' to Jaffna-curers, tobacco is priced by plant, when sold cured to Sun-curers/ traders, tobacco is priced by kg.

fertilisers. Farmers reported levels of chemical inputs for tobacco to be no higher than other cash crops, and far lower than some such as cotton, yet the impacts of such inputs are well-documented throughout India in terms of engendering the decline in soil fertility, and leading to increased expenditure on inputs in the long run (Harriss-White and S. Janakarajan 1997; Singh 2000). The development of new tobacco HYVs in preceding decades as an agro-technology for the cultivation of tobacco thus represents both a means of mitigating the appropriation of water and potentially accelerating the appropriation of soil wealth. Yet state support crucially enabled farmers to access such HYVs at low cost, thus encouraging them to continue cultivating tobacco.

This section has specifically explored how the procurement of water and hiring of labour have become more expensive and difficult for tobacco farmers, and how the impacts of this are varied across different classes and castes of farmers across different regions. These shifts alone do not explain the broader trend of livelihood-related deagrarianisation, however they are certainly part of the drive behind farmers' move away from agriculture and agrarian incomes. Specifically, in certain parts of Kongunadu, capitalist tobacco farmers and petty producers are forced to continually invest in deepening bore wells and paying for wage labour, with the levels of investment/ expenditure required for both continually rising, and such investments in wells in particular being highly risky and required to simply sustain production rather than expand it. Appropriation from Kongunadu soils has thus become more expensive and more risky. Yet the development of drought-resistant HYVs, state-sponsored technologies such as pump sets, and free agrarian electricity continue to disrupt this increase in costs. Thus in situating this section in relation to the narratives of livelihood reorientation away from agriculture set out earlier in this chapter, I would suggest that the increased difficulties in procuring water are certainly a key factor in rendering agriculture more 'difficult', specifically through rising labour and technology costs and the uncertainties of groundwater extraction, however the impact of this is complex, given the role of the state in helping farmers mitigate environmental decline.

5. Conclusion

This chapter has detailed how tobacco is cultivated in Kongunadu today. It has further shown that tobacco farmers from a range of classes are looking for the next generation to leave agriculture behind, and it has explored farmers' own narratives to highlight how the drive to leave is forged through a combination of hopelessness in agriculture, the allure of opportunities in the non-farm economy, and shifting notions of caste identity related to this. In looking to explore more specifically the shifting dynamics within agriculture, the chapter has looked to the appropriation of water, exploitation of labour, and the agro-technology of the tobacco HYV to suggest that

production is becoming more expensive and riskier, but that this process is also being mitigated to some extent. The drivers of this change are also shown to be complex and uneven across the region that I studied, and different classes and castes are affected in different ways. Overall, though remuneration through tobacco production remains viable, the deepening investments and expenditure, and accompanying risk, involved in undertaking such production have rendered agriculture less favourable across different class groups.

The next two chapters will expand on the analysis within this chapter and look in more detail at the two dominant tobacco markets in Kongunadu – Sun and Jaffna, thus articulating the focus on production set out in this chapter with a focus on circulation (Harriss-White 2007). In doing so, they will explore through a socio-ecological lens how the dynamics of processing and exchange in tobacco markets – mercantile activities – are shifting in recent decades. The chapters will also situate tobacco producers and traders more clearly within the context set out in Chapter 5, and explore how the shifts outlined in this chapter and the next two can be understood in light of this. Finally, the chapters offer the basis for a comparative analysis of two markets, where different forms of appropriation of nature within the curing of tobacco also give rise to differentiated dynamics of shifting production and exchange.

Chapter 7
The Jaffna market

1. Introduction

Jaffna is the second largest tobacco market in current-day Tamil Nadu. It is characterised by shifting dynamics of production and circulation, on the basis of the strategies embraced by farmers and traders. Crucially, these are linked to both labour and ecology. This chapter ultimately focuses on examining the current and ongoing decline of the Jaffna market. The market has historically been notably successful, offering traders the opportunity to successfully accumulate through taking on productive forms of mercantile activities, and offering opportunities for petty commodity producers to take on tobacco production and requisite levels of profit without the added burden of curing. It has enabled significant class mobility, with numerous examples of large-scale traders that began as wage labourers, and has been monopolised by the Gounder caste community, offering upward class mobility along caste lines. Today however, the market is in decline. This is due to a confluence of factors that have rendered traders' profits increasingly difficult, and also the burgeoning opportunities outside the agrarian economy. Ecological factors figure rather prominently in this market crisis, and this is rendered legible through subsequent analysis which highlights how ecology has affected the production of cured Jaffna tobacco, and how the appropriation of nature is changing over time.

Notably, Harriss-White's 'systems' approach (1996, 2007) is used to frame the 'market' in this chapter and the next, as a means of showing how spatially-disaggregated activities upstream and downstream in tobacco production are structured and articulated. In the case under scrutiny here, the Jaffna 'market' is understood to delineate the particular forms of exchange arising from a system of commodity production centred on a single form of curing, Jaffna, and concurrently a single set of production relations which have emerged from this. The market acts as the focal point through which shifting dynamics of accumulation play out. It is affected by agro-ecological factors, and it engenders the appropriation of nature, which articulates with exploitation in the production of tobacco. The narrative illustrates the difference between past and current accumulation dynamics, and reveals the productive role merchants play in shaping market structures, in line with Harriss-White's original analysis of rural commercial capital.

The chapter is structured as follows, first: I provide an overview of how Jaffna curing came to Tamil Nadu, what it comprises, the market structure of Jaffna, and characteristics of producers

and traders of Jaffna. The rest of the chapter examines how relations of accumulation within this market have shifted for producers, and how changes in the regulatory framework within which the market operates, as well as consumer preferences, have also shaped the move away from tobacco among Jaffna traders in particular.

2. Overview of the Jaffna market

Markets for Jaffna-cured tobacco, or 'Yaalpaanam Pugaiyellai', comprise approximately 20% of all tobacco production in Tamil Nadu today (CTRI, Vedasandur 2014).

Table 7.1: ***Curing and trading activities in Jaffna market***

Timescale	***Activities***
Harvest	▪ The plants are harvested by traders' labourers in the afternoon after the worst excesses of the midday sun. ▪ Harvesting is undertaken using scythes by male labourers only, and plants are laid out to dry on the earth.
+ 3 days	▪ The plants are laid out in the mornings and evenings for three full days, in the afternoons plants are stacked together and covered (usually by tarpaulin) to protect them from the worst of the heat. ▪ Labourers usually undertake harvesting and laying out for a cluster of villages over a period of four days and then move on to the next area.
+3 months (3 months 3 days)	▪ Plants are taken back to large-scale godowns, primarily around Koduvai, and leaves are separated from stems. ▪ Leaves are then individually tied to bamboo sticks which are lined up across the top of a square brick 'oven'. Slow-burning coconut husks provide fuel for the base of the oven, and leaves are left to smoke for ten days. ▪ They are then taken down, stacked in large bundles, and turned every ten days. ▪ Leaves are restrung in ovens a further two times, ten hours each time, once each month for the whole three months. The volume of coconut husks is reduced each time as leaves slowly lose moisture and gain strength and elasticity. ▪ After the third burning, leaves are taken out and left on the earth overnight to regain moisture and prevent them from crackling.
+1 day (3 months 4 days)	▪ Plants are dipped in seawater which is purchased from Kerala for flavour. ▪ Leaves are then stripped from plants and graded, at this stage the 1st grade or Rasi leaves are separated from the rest. Stems are also separated and sold to the stem trader. ▪ The lower grade leaves are compressed by hand and rolled tightly into the Rasi leaves, forming 2-foot long, cone-shapes. These are individually bound with coconut fibre string, and then several are tied together, forming a 'bundle' which weighs 6kg; this is the unit of sale to traders in Kerala. These are stacked in 15-feet high circles in traders' godowns.
+3 months (6 months 4 days)	▪ After three months in stacks, the tobacco is ready to be sold to traders. This is the minimum point of curing that Tamil Nadu traders need to reach before selling the tobacco on to Kerala, though traders can also store it for up to three years in this state.

Table 7.1, Author's own, based on field findings, 2014-2015.

The Jaffna curing process is detailed in Table 7.1 as it is currently undertaken. The process is characteristically capital-intensive, with high levels of initial capital investment required by curers to build the large, cement ovens that hold tobacco plants, and the storage godowns where ovens are located and cured tobacco is later stored. Jaffna curing subsequently requires ongoing investments in transport, as traders pay for tobacco to be transported from thottam to godown, maintaining ovens, fuel (coconut husks), maintaining godowns, and ongoing expenditure in the form of wages for labourers, as the process of triple-burning tobacco plants in ovens (see Table 7.1) is a laborious one. This process of sustained burnings is necessary however, to enable plants to cure slowly, retaining their strength and a higher level of moisture than Sun tobacco, thus allowing them to last longer and remain juicier when consumed. The main consumers of Jaffna tobacco are fishermen that chew the tobacco slowly during long, night-fishing trips, therefore the particular qualities of the tobacco as moist and long-lasting are central to its appeal. However due to the capital-intensive nature of the curing process, Jaffna curers are also always traders as well, as the capital investment required to undertake Jaffna curing means that accumulation is only possible with an economy of scale, where sufficient amounts of tobacco are purchased, cured, stored, and sold to enable curers to recoup capital expenses, particularly recurrent expenditure on labour, given the labour-intensive nature of burning each tobacco plant multiple times in Jaffna ovens. As such, there is a clear class demarcation in Jaffna value chains between producers and traders, albeit with significant social mobility in earlier decades.

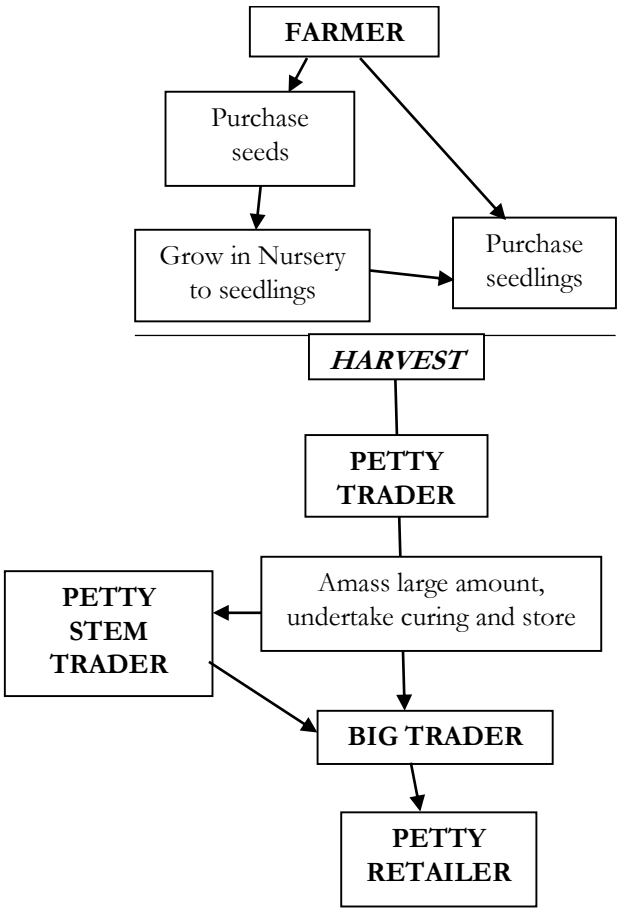


Figure 7.1: ***Jaffna market structure***

Author's own, based on fieldwork 2014-2015

Figure 7.1 is a map of production and exchange relations within the Jaffna market today based on Harriss-White's mapping of market systems (1996, 2007). Exchange takes place between producers and petty traders, and petty traders and big traders. Farmers in this market purchase tobacco as

either seed or seedling, and cultivate this up to the point of harvest. Petty traders purchase tobacco whilst it is still in the ground and undertake harvest using their own wage labourers, transporting tobacco to their own godowns and curing tobacco from numerous thottams en masse, before storing cured tobacco and selling it off over the course of the subsequent year(s) to big traders. There is also a separate market for Jaffna stems, with one specialist stem trader remaining in Koduvai today who purchases stems from all the other petty traders in the region once they have harvested and cured tobacco.

Jaffna curing originates in the Sri Lankan town of Jaffna (Yalpaanam[120]), and was brought to western Tamil Nadu by petty traders in the early 1950s. The history of tobacco in Jaffna itself dates back to at least the British colonial era. An account of agriculture in Jaffna from 1905 makes note of a flourishing tobacco market at this time, and argues that from at least the mid-19th century to the early 20th, tobacco was the principal crop in this region, albeit one that did not enjoy the global trading success of Sri Lanka's primary crop; tea (Katiresu 1905). Instead, Jaffna tobacco, made into both cut-piece chewing tobacco and cheroots, was consumed by constituencies at both ends of the local class spectrum, fishermen from coastal Kerala and southern Tamil Nadu, to colonial officers and the Rajah of Travancore[121] (Bennett 1843). Jaffna tobacco thus gained a reputation as a high-quality, relatively low retail-cost commodity in both chewing and cheroot form, and this was due in large part to the meticulous nature of curing, which enabled the cured leaf to retain high levels of flavour and moisture (Mr S, trader 2015). Petty traders[122] from western Tamil Nadu successfully drew upon this reputation by keeping the Jaffna name and method intact in Kongunadu from the 1950s onwards, and enabling producers and traders in this region to access burgeoning markets in Kerala that had existed for over a century[123].

The Jaffna market in Tamil Nadu today is characterised by regional specialisation and caste domination. The curing and trading process became firmly rooted in and entirely associated with a single town in Tamil Nadu – Koduvai – located in Tiruppur district, around 25km south-east of

[120] This is the Tamil name for Jaffna.

[121] This was the name for the princely state which is located in today's southern Kerala, its capital was in Tiruvananthapuram; which is the also the capital of modern-day Kerala.

[122] Harriss-White writes that it was a Kongu-Chettiar merchant (this is a mercantile agrarian caste from the Kongunadu region) that brought this curing process to the region (Harriss-White 1996), and I met with an elderly Gounder trader who said that his father had also been part of the original party that visited Sri Lanka and brought this curing process to Tamil Nadu (Mr S, trader 2015).

[123] This is in addition to markets for Sun-cured tobacco in Kerala which Kongunadu traders had already been producing for from at least the 18th century (Buchanan 1807).

Tiruppur town. Koduvai is quite remarkable for the concentration of Jaffna traders that live within it even today, and the reputation it has gained as a specialised area for Jaffna-cured tobacco in Tamil Nadu.

Caste has also played a key role in the evolution of Koduvai. Harriss-White writes that initially in the 1950s, Koduvai and Jaffna trading more generally were almost entirely dominated by the Kongu Chettiars that undertook intra-caste trading and employed only kinsfolk, hence the aptly-named 'Chettiar street' which runs through the centre of Koduvai (Harriss-White 1996, 238). Harriss-White's account highlights the caste-based control that prevailed among these traders, and she writes that in the whole of Koduvai, only one 'secularist and entrepreneurial Chettiar not only employed another caste, Senguntha Mudaliars (traditional weavers), but encouraged employees to set up separate firms dependent upon his own supplies, credit and contracts' (Harriss-White 1996, 238). Yet by the time of her research in the 1980s, she notes that 'rich Gounder cultivators have recently broken the caste oligopoly', finding that they were able to use intra-caste networks with tobacco producers and agrarian profits from their own production to both monopolise the market and expand curing and trading (Harriss-White 1996, 238).

This shift to Gounder-dominated markets was complete by the time of my own research in 2014-15, with every trader in Koduvai being from the Gounder community. Koduvai today is a small, market town comprising one main street, Chettiar street, and several smaller streets shooting off from this. The main road is bustling with petty businesses – tea shops, small grocery stores, tobacco stalls and scooter shops, the largest establishments in the town today are a petrol bunk – owned by one of the town's largest Jaffna tobacco traders, Mr L, and a branch of the state-owned Canara Bank. In taking any one of the roads that come off the main street, you soon emerge into open fields and it is fairly assured that you will drive past one or more Jaffna godowns within five minutes of leaving the main road, these are large warehouses where Jaffna curing and storage takes place, and which give off the unmistakably pungent smell of smoked tobacco from late January into May/ June. Today, most of these godowns are empty however, with trading declining rapidly. As well as Koduvai, there are also a number of Jaffna traders in and around the nearby town of Dharapuram, these traders are generally large-scale Sun traders as well, and are declining at a lower rate[124]. An analysis of the features of Jaffna producers and traders is proposed below.

[124] Whilst there is also a reduction in the consumption of Jaffna tobacco and therefore in demand, Dharapuram traders suggested that the rapid decline in the number of Koduvai traders over the past decade in particular had outpaced the reduced levels of demand, thus they were able to pick up extra business from large Kerala traders demanding more tobacco than was available from Koduvai alone.

Jaffna producers were spatially delineated within my research area. Given the regional specialisation of Jaffna trading in and around Koduvai, only producers in the central and southern areas of my research zones – specifically in Dindigul, Coimbatore and Tiruppur districts, were able to sell to Jaffna markets, as Jaffna traders did not travel north into Erode and Salem[125]. As such, producers selling to Jaffna traders were spatially concentrated in these three districts[126]. Jaffna producers were also primarily petty commodity producers, this is because Jaffna markets offered farmers the chance to cultivate tobacco, a cash crop with a strong market, whilst significantly reducing cultivation costs, as traders took on the full labour costs of harvesting. This was the single most expensive component of tobacco's labour costs, comprising around half of the overall labour costs for tobacco cultivation[127]. As such, producers choosing to sell to Jaffna traders were not as affected by rising labour costs in the region, but also received lower rates for their crop as a result of selling it green as opposed to cured[128]. Jaffna producers were therefore generally PCP that were unable to pay for wage labour to undertake harvesting, with a minority of capitalist farmers[129]. Finally in terms of caste, Jaffna producers were overwhelmingly Gounder. My overall sample comprised 14 producers that sold to Jaffna traders, and of these only one was a non-Gounder, a Muthiraja farmer-labourer called Mr A who had migrated to Dindigul district from nearby Madurai some years ago, and identified himself as an anomaly in an almost entirely-Gounder market (Mr N, labourer and farmer 2015). Jaffna production was thus monopolised by the Gounder community, in line with Harriss-White's earlier account (1996).

Jaffna traders, instead, comprised both petty and large capitals. Jaffna value chains all end in coastal Kerala or southern Tamil Nadu, the majority of large Jaffna firms are in Nagercoil in southern Tamil Nadu, and Kottayam and Kollam in Kerala, which are located towards the southern end of the state. These firms are characteristically family firms that have existed for five decades or more, and purchase monthly shipments of cured tobacco from petty traders in Koduvai to sell on to local retailers.

---

125 This regional variation is outlined in Table 2 in the previous chapter.

126 Tobacco producers in Tiruppur only ever sold to Jaffna traders, whereas producers in Coimbatore and Dindigul occasionally undertook Sun-curing when they were able to afford it.

127 See Table 6.5 in Chapter 6.

128 The precise difference in rates will be detailed later in this chapter.

129 Of the 14 Jaffna farmers that I interviewed, 1 was 'marginal' (0-1 Ha); 2 were 'small' (1-2 Ha); 6 were 'semi-medium' (2-4 Ha), and 5 were 'medium' (4-10 Ha).

The key areas of differentiation between firms in Koduvai and Kerala/ Nagercoil is in terms of scale and activity. With regards to scale, Koduvai firms were almost all petty, whilst Kerala/ Nagercoil firms were all large. Traders were only required to pay Value-Added Taxation (VAT) on tobacco sales if their annual turnover exceeded Rs. 1m, this dropped to Rs. 0.5m if such traders undertook inter-state sales (Commercial Taxes and Registration Department 2015). Notably, only one of the Jaffna traders in Koduvai during the time of my research earned enough through tobacco trading to be liable for this VAT[130], which had risen to 30% in November 2014 just prior to my research (Commercial Taxes and Registration Department 2015). Meanwhile, the trading houses in Kerala and Nagercoil which amassed tobacco from numerous petty traders in Kongunadu and sold to petty local retailers along the coasts were all liable for Kerala's VAT rate, which was also set at 30% at the time of my research (Commercial Taxes and Registration Department 2015). As such there was a clear difference between what I term here 'petty' and 'large' firms/traders within this market.

Secondly, in terms of activity, petty traders in Koduvai undertook a significant number of productive activities where large traders in Nagercoil/Kerala confined themselves to mercantile activities such as transport and storage. Petty traders transported green tobacco from farmers' thottams to their own godowns using hired labour, then undertook curing and processing of the crop, again with hired labour, and finally stored it ready for transport, thus overseeing a veritable process of commodity production. Conversely, large traders transported the processed tobacco cones[131] from Koduvai to their own godowns, stored them, and then sold them with no further changes made to the commodity itself. Petty traders thus characteristically relied on credit to enable them to make large investments for curing from February to July, and then waited to recoup expenses through selling cured tobacco over subsequent months to large traders.

The focus of my research is petty Jaffna traders in Kongunadu. In terms of caste, Jaffna trading in the region certainly compromised a caste monopoly. Despite my efforts to seek out non-Gounder traders, my sample[132] comprised 11 petty Jaffna traders, and all 11 were Gounder. With regards to locality, 10/11 lived in Koduvai and its surrounding villages, the 11th lived in a village nearer the town of Oddanchatram in Dindigul district. In terms of class, all 11 traders continued to profit

[130] This trader is Mr BG who remains the largest trader in Koduvai today. Despite the fact that he is liable for VAT however, he is able to sell his tobacco stock to several traders in Kerala and register each consignment under different firm names, thus avoiding having to pay VAT on any.

[131] See Table 7.1.

[132] I also undertook observation and informal conversations outside interviews, as highlighted in Chapter 3, and this substantiated the fact that Gounders monopolised petty Jaffna trading.

through Jaffna curing. However notably, they were almost all of an older generation – only one was below the age of 60 – and 10/11 reported that their children would not return to agriculture and had already built a life outside it. As such, there was little evidence[133] of reinvestment and expansion in the Jaffna market.

3. Earnings in the Jaffna market

Fieldwork highlighted that whilst Jaffna traders continued to profit, there was scant evidence of reinvestments. Instead, traders were generally decreasing the volume of tobacco traded, with a few committed traders reaping the benefits of this and increasing their production to keep up with market demand.

Looking first to traders, fieldwork indicated that profits were consistently strong, with reported rates of profit ranging from ₹5 – ₹10/kg of cured and traded tobacco over the past five years. 9/11 traders interviewed relied on high levels of credit, however this was largely for liquidity – to enable them to purchase stock in large quantities and pay for costs of processing, thus it was repaid annually once profits were recouped from exchange with larger traders, and did not indicate indebtedness. Petty traders are subject to the vagaries of temporal price shifts from big traders in Nagercoil/ Kerala, they reported low prices for tobacco in the 'high season' from March to July/ August, and then higher prices after this, thus in many cases traders choose to store tobacco and sell it incrementally. This involves a trade-off in increased wage labour costs to continue re-stacking the tobacco every 10 days to prevent mould, and also the fact cured tobacco's weight reduces by around 10% per annum.

Jaffna traders indicated that their profits had historically been very high in comparison to trading profits from other cash crops, and have enabled significant upward class mobility within the Gounder community. 2/11 traders in my sample began as wage labourers in another trader's Godown, and were able to ascend through intra-caste solidarity and credit provision. As one trader narrated (Mr F, farmer and trader 2015):

> *'I used to work in a tobacco Godown, for a wage I used to do that work… from that I learned what you do with tobacco and how you do it, at a young age. Once I knew that livelihood then they moved me from basic labour to overseeing an oven, and then I was in charge of around 20 labourers and looking towards management, I was 20-22 years old around that time.*

[133] The one notable exception to this is Mr S in Oddanchatram, Dindigul district; his case will be further explored later in this chapter.

Then with other labourers in a small kootam, about ten of us, we looked to trading and began trading together - two of us led it, I with a partner. I was only in the partnership for four-five years, since then I've been doing it alone and expanding ever since'

Mr F's story highlights the possibilities for upward mobility among 'classes of labour' from the Gounder community through the Jaffna market at the same time when petty Gounder producers were investing in small industries in Tiruppur (Mahadevan and Vijayabaskar 2014). Mr F's experience of a kootam is one of the specific paths that that Mahadevan and Vijayabaskar (2014, 29) identify into petty industries in Tiruppur – the 'journeyman' route, where a group of workers come together to invest in a small unit, made possible through low entry barriers in terms of capital investment, and intra-caste cohesion. A number of labourers took the 'journeyman' rote into Jaffna trading in the 1970s and 1980s, when Jaffna markets were expanding, thus highlighting the fact that this form of trading was considered as promising as Tiruppur hosiery. However, Mr F laments that today; 'This just isn't a 'big profit' business anymore, if you want really large profits there is no point in doing this' (Mr F, farmer and trader 2015). Despite sustained profit margins and notable upward class mobility, fieldwork indicated that the market is in clear decline, with traders choosing to shut godowns. As one trader stated, 'After my generation this livelihood won't exist' (Mr I, trader 2015).

Table 7.2: ***Profits by Jaffna producers in a year of peak prices, arranged in ascending order of profits/acre***

Agrarian class	**Area under tobacco (acres)**	**Profits/ acre 2013-14**	**Credit/ borrowing arrangements**
PCP	1.8	-₹9,167	₹50,000/per annum, 3% interest, from family moneylenders.
Capitalist Farmer	20	₹10,000	₹100,000/annum, 2% interest, from local moneylender.
PCP	3	₹16,667	₹100,000-200,000/annum, 3% interest, from local moneylenders
Capitalist Farmer	7	₹71,429	Interest-free advance from known trader of ₹10,000 – 50,000.
Capitalist Farmer	2	₹75,000	Borrow from coop or son, unspecified amount.
PCP	2	₹80,000	₹100,000/annum, 3% interest, from local moneylenders.
PCP	0.5	₹80,000	No credit

Table 7.2, author's own, based on fieldwork 2014-2015

In terms of producers, data is scant but indicates that levels of remuneration are quite varied. Table 7.2 shows rates of profits across a range of Jaffna farmers in 2013-14, the second year of sustained drought in Kongunadu, when tobacco production was low, demand was relatively high, and rates were consequently very high for farmers[134]. Despite this, the table reveals significant variation with regards to profits/acre, even among PCP. Rates for tobacco were generally high across Jaffna-producing areas, varying between ₹10/kg – ₹15/kg[135], thus evidence from field interviews suggests that the difference in rates of profit may reflect the quality of their crop, shaped by whether producers were able to appropriate water and acquire sufficient labour to cultivate tobacco to a good standard, though this certainly requires further investigation.

For example Mrs P, a petty producer who suffered a loss of ₹9,167/acre reported significant problems in accessing water, with only one open well, 80ft deep that had been built in her great-grandfather's time, and access to perennial canal water (Mrs P, farmer 2015). Mrs P said that as a result, the tobacco she planted in 2013-14 'dried out' because she did not have sufficient water for irrigation, and thus even though she initially agreed a high rate with the trader, by the time harvest came, the crop was of a very poor quality and thus the trader harvested it for a very low rate of ₹8,500 for all 1.8 acres of tobacco. Mrs P said cultivation costs were also very high due to expenses for wage labour, totalling around ₹30,000 for the 1.8 acres, thus she was unable to purchase water or deepen her well, and suffered an overall loss. Conversely Mr D, the petty producer that was able to recoup profits of ₹40,000 from 0.5 acres, reported sustained access to water from the nearby Amaravathi river, and taking on significant amounts of family labour in order to cultivate tobacco, undertaking tasks such as irrigation and weeding incrementally (Mr D, farmer 2014). Mr D was therefore able to appropriate water and reduce labour costs in order to ensure that the crop grew to a good standard.

Jaffna producers suggested that Jaffna was declining at a faster rate than agriculture in the region, thus 'decline' was linked more specifically with the production and trade of Jaffna tobacco, and less with agriculture in general. While these findings are largely based on interviews, and remain suggestive, they are still very interesting, as they seem to indicate shifting dynamics in the production and trade of tobacco. I use it as a point of departure, the rest of this chapter thus explores the specific factors behind decline in the Jaffna market.

[134] See Chapter 6 and Table 5 in this chapter.

[135] This rate is corroborated through interviews and informal discussions across the region and this range quoted remained largely consistent across informants.

4. Shifting dynamics in the Jaffna market

Dynamics of production and circulation in the Jaffna market have changed over the past two decades. This can be understood by looking at the evolving strategies and behaviour of traders[136].

Image 7.1: ***Jaffna labourer making cones of cured and stuffed leaves in a godown in Dindigul district***

Author's own, taken 13.01.2015

Whilst tobacco production is shown to be contingent upon the appropriation of water and the exploitation of labour, in the case of curing, field findings suggest that it is increasing expenditure on labour that is driving change. Yet this is still very much articulated with the appropriation of nature, given that within Jaffna curing, the appropriation of cheap natural energy – specifically through burning coconut husks – as a means of enabling commodity production (the production of cured tobacco by productive merchants – this argument is developed below) requires high amounts of sustained labour to move tobacco plants in and out of ovens three times, rest them on the earth outside and also dip them into seawater (see Table 1 earlier in this chapter). The appropriation of nature is thus shown to affect the division of labour within Jaffna markets. In exploring the shifting dynamics of labour more closely, fieldwork indicates increased difficulties in procuring labour and increased wages for labour, as well as a loosening of the power dynamics underpinning farmer-trader exchange. As such, in looking to power relations upstream of circulation and productive merchant's capital, as outlined in Chapter 6, field data indicates that the costs of producing cured tobacco for traders are rising, driven largely by shifts in caste and class, but also due to the rising

[136] The previous chapter provided analysis of how production dynamics are changing for both capitalist farmers and PCP. In the Jaffna market, accumulation is driven by traders, and thus I focus here on understanding the dynamics sustaining this, with analysis of how Jaffna producers are also part of this picture.

costs and uncertainties of appropriating nature. I illustrate the ways in which these dynamics play out below, starting from an analysis of wage labour.

The largest expenditure that Jaffna traders undertook in producing cured tobacco was for wage labour. This was due to the high levels of labour required to undertake Jaffna curing and appropriate the wealth of coconut husks, thus traders have historically been reliant on cheap labour to sustain accumulation. In recent years, field findings indicated that wages across labouring activities had notably increased. For example, Mr S, the largest petty trader in my sample who was based near Oddanchattram, reported that when he began trading in 1981, day rates were ₹15 for male labour and ₹7 for female, today they are ₹400 and ₹200 respectively. Mr S requires 50 day-labourers throughout the harvest period from February to May for the processing of 150 tonnes of tobacco in total (Mr S, trader 2015). These labourers were paid weekly wages of ₹2,800/ week for men, and ₹1,400/ week for women, and 70% of labourers were female, resulting in an overall labour cost of ₹1.09m over the harvest period alone. Mr S largely chose to purchase, cure and sell all tobacco in one go during harvest season, rather than store it and sell it incrementally over the year, to avoid sustained labour costs for turning tobacco, despite the fact that he may have received higher rates for tobacco in later months. Conversely Mr BG, a petty trader from Koduvai, sold tobacco each month to Kerala, processing 350 tonnes of tobacco in 2013-2014, sending monthly shipments of 35 tonnes to Kerala (Mr BG, trader 2015). Mr BG reported weekly labour costs of ₹45,000 over the whole year, coming to ₹2.34m per annum.

These indicative findings are in line with broader research. Reddy (2015, 56) examines whether economic transformation across India has led to a tightening of rural labour markets and a concurrent increase in rural wages, the so-called 'Lewis turning point', and explores this at both a national and state-level. In doing so, he finds that Tamil Nadu is among the states that have seen significant real wage increases in rural areas since 1999, notwithstanding a brief downward trend during the mid-2000s[137]. Between 1999 and 2012, the annual compound growth rate for wages for unskilled labour in rural Tamil Nadu was 3.3%, and for rural labour in general was 2.5%, thus indicating a significant and continued increase[138]. Both Mr S and Mr BG complained that the increase in labour wages was not met by a proportional increase in the rates offered to them by Kerala traders, thus their profits were proportionally lower than in previous decades. Yet the impacts of this were felt unevenly by different traders. Both Mr S and Mr BG were also exceptional

[137] Also Andhra Pradesh, Himachal Pradesh, Punjab and Haryana.

[138] Reddy indicates that wages were deflated 'using the consumer price index for agricultural labourers and rural labourers, respectively, with a base year of 1986/87' (2015, 57).

in the market as a whole in continuing to invest in maintaining and even expanding their curing and trading. They both suggested that the rapid decline in the number of petty Jaffna traders outpaced the decline in demand from Kerala and Nagercoil, thus enabling them both to increase their market share.

In general however, field findings suggested that rising rural wage rates were a key driver in pushing other petty traders out of Jaffna tobacco. In linking these findings with the broader scenario set out in Chapter 5, tightening rural labour markets are likely to be driven by industrial and services sector absorption, and increased bargaining power for labour resulting from scarcity and social policies such as NREGA, driving wages up, and rendering labour's working hours shorter and conditions better. Jaffna traders felt these shifts acutely as labour in this market required a certain level of specialisation, both in terms of being accustomed to working with tobacco, and in terms of the specific tasks involved in curing. As Mr BG commented; 'Only those that know how to do this work can do it, not just anyone can do this work… new people don't like the smell!' (Mr BG, trader 2015). Table 7.3 highlights the rates paid by the one of the largest Koduvai traders, Mr F, for different labour activities, with increased rates required in order to attract labourers either accustomed to tobacco or willing to learn (Mr F, farmer and trader 2015).

Table 7.3: ***Day rates for different gendered activities in Jaffna processing***

Labour task/ gender (basic)	**Day rate**
Women doing general labour	₹200
Men doing general labour	₹300
Labour task/ gender (specialised)	**Day rate**
Women folding tobacco into cones	₹300
Men rolling leaves into cones and stacking them	₹400
Men harvesting tobacco from thottams	₹600
Men dousing cured plants in sea water	₹350

Table 7.3, Author's own, taken from interview with Mr F, Curer-Trader, (2015)

Whilst wages remained gendered, certain tasks that were deemed more skilled also enabled women and men to earn more than the general daily agricultural labour rate in the region, which was ₹200 for women and ₹300 for men[139]. Mr F complained bitterly about yearly increases in labour wage

[139] The male rate in Koduvai is lower than that in Oddanchatram, which is where Mr S's labourer's come from (as detailed at the start of this sub-section).

rates required to attract sufficient numbers of attract labourers to his godown, and directly linked this to the recent exodus of Jaffna traders in the area 'There used to be around 120 godowns around Koduvai 20-30 years ago, now there are only 26. They have disappeared because there are such problems with finding labour, you can't make a profit doing trading anymore' (Mr F, farmer and trader 2015).

Meanwhile, this shift in wage rates has not necessarily been coupled with any rises in labour's productivity. A productivity increase would, according to Marx, constitute an intensification of the labour process such that more commodities were produced over less time, enabling increased returns for capital from the sale of increased numbers of commodities (Marx 1976). Yet intensification is not evident in Jaffna processing, there is no mechanisation at all, and other intensification processes such as tightened labour control are waning rather than sustaining or increasing, due to labour's increased bargaining power. As such, field findings suggest that Jaffna traders are forced to pay more for labour without seeing a concurrent increase in production, thus cutting into their profits over time.

Notably, labour in tobacco is fairly differentiated: caste, class and gender interplay in complex ways. Jaffna traders have historically appropriated women's unpaid labour and are not alone in doing so – this form of gendered appropriation is consistent across the households of all 68 respondents within my sample[140]. In fact, women's work often goes unnoticed across India (Mazumder and Neetha 2011) because men under-report their wives' contributions, and also because women themselves tend to downplay the amount of work that they undertake (see Kapadia 1999). This is most notable in terms of household labour – where women's contributions often go under or unreported by both men and women, and as such, fail to be adequately accounted for in analyses of rural accumulation and exploitation (Kapadia 1999; Kabeer 2016). I did not collect systematic data on women's unpaid labour, as male household heads were my primary informants. However, the numerous observations gathered and endless informal conversations held with women in farming and trading households throughout the research - also thanks to my fluency in Tamil – turned these fieldwork encounters into yet another crucial source of insight. The results of my observations are summarised below, and should provide the basis for future research on women, as will be indicated in Chapter 9.

[140] I refer in this sub-section and the next one to appropriation by Jaffna producer and trader households, because as Section 4biii will show, traders have also historically accumulated from appropriation undertaken by producer households through commodity exchange.

Women observed across the majority of the 68 households in my sample undertook the bulk of domestic work – cooking and cleaning, the reproductive work of looking after children, and agrarian work on their own land, as well as work within Jaffna godowns and undertaking Sun-curing. Field findings suggested that the extent to which women were required to undertake such unpaid work was mediated by caste and class, and these combined in different ways to engender different forms of conjugated oppression (Shah et al. 2017). Age also played a role, or rather inter-generational shifts in the appropriation of women's work were evident. Older women were generally burdened with domestic, reproductive and agrarian household labour, whilst younger women, particularly within the Gounder community, were more likely to enter into higher education and thus avoid high levels of family labour. This contravenes the depiction put forward by Chari from earlier decades of the archetypal Goundachi-amma – the female figure who undertakes household work as well as household budgeting and thus assumes a matriarchal role of sorts (Chari 2004, 156). Chari's account pays heed to the significant gendered exploitation of such women that has historically contributed to the Gounder community's fraternal accumulation and expansion in agriculture and industry during preceding decades (Chari 2004).

Today however, younger Gounder women in sampled households were largely oriented towards higher education, in some cases going on to undertake even postgraduate degrees. This shift was quite recent, Heyer notes that in the late 1990s, younger Gounder women were still largely confined to the household, with women from better-off Gounder households entering higher education but constituting a real minority (2016a, 211, 215). This observed shift was also confined to the Gounder community within the Jaffna market as this caste group constituted all the farmers and traders that I interviewed.

The drivers behind women's increased education in Gounder households over the past decade are complex, likely due in part to the state's affirmative action policies which have enabled Gounders to access higher education more easily, and to a discernible shift in the attitudes of younger women within this community around the desirability of a non-farm lifestyle. Yet notably, younger Gounder women living in urban areas did not necessarily enter into non-farm careers, rather there was an aspiration expressed by Gounder fathers for their daughters to be able to eschew waged work altogether and simply confine themselves to domestic labour. The younger Gounder women that I spoke to also set forth similar aspirations, and as outlined in the previous chapter[141], their views were afforded more prominence due to the relative shortage of younger, marriageable women within the Gounder community, possibly driven by caste-based practices of gendered

[141] See Section 3aii in Chapter 7.

foeticide in previous decades (Heyer 2017). Younger Gounder women were therefore generally looking to become educated, as Heyer (2016a) writes, as a means of securing a husband rather than to enable such women to enter into salaried careers. Research suggested that educated women were seen to be more attractive to younger Gounder men that were already engaged in the non-farm sector, thus it represented a path out of the village for many younger women within agrarian Gounder households. Class also played a role in mediating women's work, with wealthier capitalist Gounder households (such as Jaffna trader households) more likely to have younger women of the household confined to limited domestic labour, mitigated through the use of servants to undertake cooking, cleaning, and even childcare.

These findings speak to broader patterns around women's workforce participation across India, and the ways in which caste and gender combine in conjugated forms of oppression (Shah et al. 2017) to structure women's participation in waged and unwaged spheres of labour. Specifically, there has been a clear link across the country between declining labour market participation and rising income levels among women (Abraham 2013). This is shown to be driven in part by caste-based patriarchy, where women from upper caste backgrounds in wealthier households have long been more confined to the domestic sphere than women from labouring class and Scheduled caste/ Backward caste backgrounds (Boserup 1989; Abraham 2013), and upward class mobility among the latter groups has led women from these communities to move into more restricted, domestic spheres of unpaid work in aspiring towards the norms set by upper-caste communities (Abraham 2013; Neetha 2013). Education for women within such ascendant communities is shown not to necessarily have the effect of enabling women to seek work outside the household, but to increase their status within the community whilst having no effect on their mobility (Jeffrey and Jeffrey 1994). In reflecting on these broader trends in light of what my fieldwork indicates, the phenomenon of younger women from wealthier Gounder households choosing to become educated is understood as representing a means of leaving the thottam or godown behind, and in doing so, decreasing the 'double burden' of waged and unwaged work that they have historically faced (Kapadia 1999, 82). It must be noted that many women are arguably also entering into new forms of oppression around their mobility and engagement in labour markets, thus moving from one form of conjugated oppression to another.

Ultimately, field findings based on multiple informal encounters and observations indicate shifting dynamics in the gendered nature of unpaid work. Further research would do well to investigate the precise contours of this change across different classes of producers or traders. For now, I would suggest that the shifting dynamics are likely to reduce the availability of women's unpaid work on the thottam, thus forcing producers and traders to require greater levels of wage labour.

As a final note on labour, I would like to suggest that it is not possible to discuss labouring in tobacco production without reference to the corporeal traits of exploitation, something that other studies on other sectors in India have already analysed and/or suggested (see for example Mezzadri 2017 on sweatshops). In particular, with reference to tobacco, it should be highlighted that Jaffna producers and traders have always historically exploited the bodies of labour in order to appropriate surplus value. Tobacco labour actively degrades the health of workers, through handling green plants on thottams and cured plants in Jaffna godowns, and capital has failed to take on the requisite social protection costs associated with this, thus appropriating from the very bodies of workers within Jaffna markets.

As outlined in the previous chapter, handling fresh tobacco over long periods of time causes 'Green Tobacco Sickness' (GTS) – a form of nicotine poisoning with symptoms including nausea, vomiting, headaches, dizziness and difficult breathing (McBride et al. 1998; Achalli, Shetty, and Babu 2012). Further, exposure to smoking tobacco or 'second hand smoke' – for example in Jaffna ovens – is also harmful, with exposed bodies having a higher risk of contracting lung cancer and other chronic respiratory issues (TFI, WHO 2017). Both GTS and second hand smoke were prevalent across Jaffna thottams and godowns that I visited, and wage labourers always suffered the greatest exposure. Work in godowns in particular was very difficult, walking into these buildings during the heat of Tamil Nadu summers that reach up to and above 40°C in March and April, you can barely breathe through the heavy, pungent haze of smoky tobacco dust that fills the atmosphere, and you feel yourself gasping for air as soon as you step outside. Labourers wear no respiratory protection at all, and report dizziness and vomiting on a regular basis in the first years of doing this work. I retched continually during my visits to Jaffna godowns, and was told by bemused traders that it would take some years to acclimatise to the tobacco dust and have these symptoms stop. Both GTS and second hand smoke-related issues could be prevented with appropriate protective equipment (McBride et al. 1998), yet no such measures were evident in Jaffna processing.

Drawing on the work of O'Laughlin (2013), Mezzadri (2015, 2017) has shown that capital's refusal to take on the occupational health costs resulting from the degradation of labouring bodies through the production process is central to its accumulation strategy. Jaffna producers and traders have historically failed to recompense labourers for corporeal degradation and have thus been able to implicitly benefit through corporeal exploitation. However the extent to which producers and traders are able to exploit labour in this manner was partially waning during my research. Today, whilst this process of corporeal degradation continues, it also acts as a disincentive for newer labourers to take up work in Jaffna godowns; as highlighted previously. The decline in labour

markets across Kongunadu combined with labour's increased bargaining power in this region means that labourers are not forced to take on tobacco wage work and thus decline to do so. All 11 Jaffna traders in my sample complained of significant problems in finding adequate labour, and they all also linked increased wage rates for specialised labour tasks within Jaffna godowns to this decline in availability, thus labour investments increased. Despite this, increased wages have not lead to any form of protective equipment, thus the exploitation of labouring bodies continues, albeit at a greater price than before.

Finally also, the power dynamics of market exchange are crucial to understand the ways in which exploitation works across sectors. This is definitely the case for tobacco. Harriss-White (2007), drawing on the work of Bhaduri (1973), highlights the fact that exchange relations through markets need to be understood in the context of power relations, not merely as a mechanism of allocative efficiency in redistributing goods as indicated in mainstream literature. Harriss-White (2007) illustrates this in practice through a quantitative analysis of rice markets in West Bengal. This analysis unveils the power of both the state government and mills, largely financed by the Marwari community, in controlling the extraction of marketed surplus from producers, and charts the proportion of marketed produce that is in fact surplus from firms downstream of the production process. My analysis here is instead focused on the actual process of bargaining between producer and trader in the Jaffna market, and the power relations inherent within this, thus limited to identifying the power dynamics through a largely subjective lens, whilst a fruitful direction for further research would be to understand the quantitative dimensions of this.

There is no physical marketplace for Jaffna, despite the concentration of traders around Koduvai. Instead, trading is undertaken on thottams – traders themselves, or closer to Oddanchattram brokers, visit tobacco-growing thottams from early January onwards to secure stock and decide upon prices with farmers. This process involves counting how many plants a producer has planted per acre by counting plant rows along the length and width of fields, and then multiplying them. Producers are often accused of having planted extra plants along the edges to give the illusion of greater density, though producers claim that this is a myth perpetuated by traders to drive prices down. Prices are then fixed in relation to a number of factors. Field findings suggested that key among these were: what the overall acreage under tobacco across the state is predicted to be that year, what demand from Kerala and Nagercoil is predicted to be, the quality of plants, and the proportion of Rasi, Matam and Kursu leaves that plants have, with poor weather leading to degraded general crop quality. Rates are fixed per plant, and each pacche plant weighs around 1.5kg. After a rate is agreed, the trader then sends his labourers back to the producer's thottam at the point of harvest, usually in March. Money changes hands at this point, in cases where traders

are particularly familiar with producers they may ask for a leeway for 2-3 months, however there were no cases of either interlocked credit markets, or failed payments to producers.

Historically, the central issue that plagued this marketing system was the physical isolation that producers found themselves in, combined with the perishability of the crop. Jaffna traders and brokers engaged in one-on-one negotiations with producers, and given the complexity of calculating rates with regards to issues like plant quality and the proportion of different leaf grades in particular, traders and brokers were easily able to drive prices down, compounded by the fact that tobacco does not feature in any general price index. Tobacco is also perishable – traders and brokers visit thottams around 2-3 weeks prior to the crop's harvest, and if the crop is left in the ground too long, it wilts, with weakened leaves that become degraded as a result. Producers are thus constrained by time with regards to negotiations, rendering them beholden to traders to an extent. Furthermore, in decades past, numerous producers, notably PCP, detailed systems of cash advances from particular traders which tied them to these traders year-to-year. As such, producers were forced to continually sell to the same traders in light of this, and traders were able to more easily drive down prices and therefore extract surplus by interlocking credit and commodity markets and thus cementing their power as trader-cum-moneylender (Bardhan 1980; Bhaduri 1986).

Today, the advent of mobile phone technology has opened up this trading system to an extent, and the demise of trader advances has weakened their hold over particular producers. Nonetheless, I was surprised by how powerful traders remained in terms of being able to drive prices down more broadly. I would suggest that a key determining aspect of this was the fact that Jaffna producers were primarily PCP, and such households were typically poorer. Producers were thus forced to sell to petty traders, given the perishability of tobacco, as they were unable to undertake the capital expenditure required to Sun-cure and store tobacco, allowing them to access higher rates and increase their bargaining position. Traders notably work collectively to perpetuate certain discourses which seek to justify the lowered rates they offer for tobacco. As outlined in Table 7.4, all of these discourses relate to how price formation further up the value chain is being constrained by either the state or central government, largely due to the tobacco control agenda.

Traders rely on the fact that to a large extent, farmers depend on them for information about the wider market. Of the 14 farmers that sold to Jaffna markets within my sample, none used the internet as a means of accessing news, instead they read local newspapers and relied on information from traders/fellow farmers in the local region. Traders also rely on the fact that farmers lack political awareness of issues around tobacco control due to the absence of mobilisation among

them[142], whereas traders themselves are highly unionised, and the union or sangham is very politically active[143], with regular meetings, paper circulars, and intra-caste networks across Koduvai, Dharapuram and Oddanchattram. Mr BG, the largest Koduvai trader, is head of the Jaffna Sangham, and the Secretary is Mr S, a large-scale trader based just outside Oddanchattram. Jaffna traders are also all from the same caste group, and thus intra-caste solidarity strengthens class solidarity, 'Institutions of kin, caste, locality and firm educate a trader' (Harriss-White 1996, 241).

Table 7.4: *Myths and realities of Jaffna trading discourses*

Traders' claim	Reality
"The VAT hike of November 2014 has increased expenditure for traders, thus farm gate prices need to come down."	In reality, not one of the Jaffna traders in Tamil Nadu pays VAT; even Mr BG who is liable doesn't pay as he has created several firms and thus ensures that each of these has a turnover that remains under the Rs. 10 lakhs that would make them liable.
"All chewing tobacco is banned in Kerala and so traders have to pay various bribes to enable farmers' crop to be processed and packaged."	Only *Gutka* and *Paan Parag* are banned (Ayyappan 2013) – Jaffna tobacco is never used for anything except cut-piece tobacco, which is not banned.
"A tobacco ban is impending in Kerala, and so there are increasingly fewer big traders to purchase Jaffna, resulting in reduced demand and driving prices down."	The Kerala state government has been historically stringent on alcohol production and retail within the state in banning sales of alcohol in all bars except those in 4 or 5 star hotels in 2011 (Parthasarathy 2016). This has been used as evidence to suggest that the same will happen for tobacco, and NGOs repeat this claim, but there is no material evidence to suggest that it is true. Furthermore, the decrease in big traders is not valid given that every producer reported that they were able to easily sell their crop, and petty traders generally did not have stocks remaining from previous years, thus there was clearly sufficient demand for sales to take place at these two points of exchange.
"A stringent tobacco control campaign in Kerala has led to a	There was no specific evidence to corroborate this, though Kerala has taken a harder stance on alcohol than other states (Parthasarathy 2016), and has been

[142] The traders' sangham includes both producers and labourers in name, but in reality, farmers report that they are only ever asked to participate when traders need signatures for petitions, or numbers to bulk out a rally.

[143] The union has in the past successfully lobbied the state government to reduce levies on chewing tobacco – in 2009, the sangham met with the then-Chief Minister Karunanidhi, head of the DMK party, to argue that chewing tobacco should be exempted from VAT for the same reason that Beedi already was – consumers for both these commodities are characteristically drawn from the poorest sections of society. Karunanidhi acquiesced and so in November 2009, chewing tobacco alongside Beedi was exempted from state VAT. This remained the case until the subsequent hike on VAT in November 2014, when chewing tobacco was un-exempted.

drastic reduction in consumption, thus farm gate prices need to come down due to lack of adequate demand."	the first to enact certain tobacco control legislations such as an advertisement ban (Hefler 2015). However evidence from Kerala, where Jaffna is primarily consumed, has shown that the consumption of smokeless tobacco is *increasing* (Thankappan and Thresia 2007).
"Jaffna tobacco is not carcinogenic at all due to the lack of chemicals used in cultivation, curing and the final commodity. The state is mistakenly penalising Jaffna tobacco with taxes/ an impending ban when it is actually Gutka/ smoked tobacco that is carcinogenic."	Recent research clearly indicates that all forms of chewing tobacco, both those where tobacco is mixed with other ingredients (Gutka and Paan Parag), and those where just tobacco is chewed (cut-piece Jaffna tobacco), are highly carcinogenic and linked to mouth, throat and oesophageal cancers (D. N. Sinha, Abdulkader, and Gupta 2016). There is also evidence to suggest that ingredients in Gutka such as betel nut, areca and slaked lime are also carcinogenic (Jeng, Chang, and Hahn 2001), making it potentially worse, but this does not mean that chewing tobacco is itself not carcinogenic.

Table 7.4*,* Author's own, taken from interviews with and observations of Jaffna producers and traders, 2014-15.

I am unable to verify the impacts of these shifting dynamics upon surplus extraction by Jaffna traders through market exchange, yet the shifting dynamics are themselves crucial, and indicative of a wider loosening of the social hierarchies that enabled accumulation within the market. I also highlight such dynamics because in drawing on the work of Baglioni and Campling (2017), we can see that surplus extraction through exchange represents traders indirectly accumulating through producers' appropriation of soil wealth, hence, arguably, contained within the commodity. Traders' driving down prices thus suggests an indirect form of appropriation of nature's wealth, though there is no evidence here to suggest here that environmental change is shaping traders' shifting dynamics during exchange. Rather, the link is made here to think through once again how production is more broadly contingent upon the appropriation of nature. Today, ultimately, whilst relations sustaining uneven market exchange prevail to a great extent, there is some evidence that previous means through which exchange was even more exploitative – the isolation of Jaffna trading without mobile phones, and cash advances by traders – are waning.

Overall, changes in power relations and patterns of exploitation within the Jaffna market are complex and uneven for different categories of traders in different regions. However, one can say that there is scarce evidence of individual traders growing their market share in recent years. The next and final section details one last, key aspect of market decline – the shifting nature of tobacco consumption, and how this has been shaped by state measures seeking to curb it.

5. Tobacco control and consumer preferences

Jaffna tobacco production and exchange is embedded within a broader regulatory framework, which is also driving changes in consumer preferences for Jaffna tobacco. In fact, these changes are also arguably contributing to shaping the decline of Jaffna markets by pushing traders not to reinvest profits in expanding their curing and trading activities.

Although the specific myths peddled by traders around the impact of tobacco control policies, as outlined in Table 7.4, are not fully accurate. there are clear impacts from regulatory tobacco control policies that are worth noting here[144]. India has been an active member of the WHO's Framework Convention on Tobacco Control (FCTC), and implemented a stringent national tobacco control policy as a result of this in 2003, entitled the 'Cigarette and other Tobacco Products Act' (henceforth 'COTPA')[145] (K. S. Reddy and Gupta 2004). COTPA legislation has included increased tobacco control warnings on television and radio, poster campaigns, regulating the location of tobacco stalls away from schools, and health warnings on packaging, and such policy measures have been increasing over the past decade (Hefler 2015).

Alongside this, and quite removed from the FCTC and related campaign work (Dr Prakash Gupta 2014), the Food Safety and Standards Authority of India introduced a piece of regulation in 2011 which allowed states to ban any food containing harmful substances for a period of one year, and to renew this on an annual basis (FSSAI 2011). Tobacco was specifically mentioned in article 2.3.4 of this act, and as such, Gutka, which is classified as a food product but contains tobacco, was immediately banned by a majority of state governments from 2012-2014 (Dr Prakash Gupta 2014). Kerala was one of the earliest states to undertake this ban in May 2012 (Mathew 2012), and Tamil Nadu came a year later in May 2013 (Ayyappan 2013). Despite this, Gutka remains readily available across Tamil Nadu, with a study in 2016 by the Adayar Cancer Institute, a leading cancer treatment centre in Chennai, suggesting that over 90% of smokeless tobacco users in Tamil Nadu were still able to access banned Gutka products, albeit at almost double the price in many cases (Cancer Institute, Adayar 2016; TNN 2017).

[144] As outlined in Chapter 3, I initially set out to research how tobacco control policies were shaping tobacco production and exchange, and I chose to move away from this focus because I found that the impacts were largely minimal. This was because the majority of tobacco control policies in India and globally are aimed at smoked forms of tobacco such as cigarettes and beedi. Despite the ban on the manufacture and sale of Gutka in Tamil Nadu, the product was still readily available (TNN 2017). As such, the section on tobacco control policies does not occupy a prominent role within my thesis, though I have tried to indicate how this may change in the future.

[145] See Chapter 2.

Jaffna tobacco does not go into Gutka products, and so the regulations related here are more relevant to the Sun market, as will be detailed in the next chapter, and have to some extent enabled Jaffna to become more favoured given the fact that it is a legal form of chewing tobacco. However the overall result of increased tobacco control measures is that big Jaffna traders in Kerala face the looming threat of increased regulation from the state, as well as increased taxation, and the stigma associated with retailing a product that the state is actively trying to identify as harmful. As such, petty traders and farmers in Tamil Nadu reported the increased closing down of Kerala traders over the past decade or so, again with some evidence that remaining traders were increasing their market share as a result of this. The state's role here is decidedly contradictory, given its active participation in providing agro-technology to tobacco farmers in the form of HYVs (CTRI, Vedasandur 2014), whilst also curbing the manufacture and sale of tobacco commodities through the ban on Gutka, and the consumption of tobacco commodities through tobacco control measures. Notably however, consumption trends were not necessarily aligned with shifts in the regulatory framework of tobacco.

In terms of consumption, in fact, despite the illegality of Gutka and the legality of Jaffna, evidence from the field suggested a shift towards the former rather than the latter. There is evidence to suggest that although smoked tobacco consumption in Kerala is decreasing, chewing tobacco consumption is actually increasing (Thankappan and Thresia 2007). Yet traders and farmers reported that younger generations were no longer chewing more traditional forms of tobacco such as Jaffna, which are associated with particular livelihoods such as fishing, rather they are choosing to consume manufactured chewing tobacco, which is Sun-cured[146]. As Mr H, a Koduvai trader suggested (Mr H, trader 2015),

> *'This farming and trading will all be finished with our generation… nothing will happen to tobacco, but sales in Kerala are really low, so if it is not selling there, how can we grow it here? It gets less and less each year, no one uses it there anymore, they've gone to other things, because of the ban, and also children have gone to new things like cigarette and beedi'.*

Jaffna was considered a particularly pungent and therefore anti-social form of chewing tobacco among many of the younger consumers that I spoke to, and its lack of advertising and branding saw it tarnished as a 'traditional' variety, consumed by 'older' people. Conversely, newer forms of chewing tobacco, usually Gutka commodities such as 'Paan Parag' and 'Haans', were very popular among younger generations – the addition of synthetic flavourings, along with the fact that the

[146] This will be outlined further in the next chapter.

product itself was dry and in a packet, meant that consumption was altogether a less pungent affair, and the commodity left far less staining on teeth and hands. In Tamil Nadu, tobacco consumption has come down significantly over the past decade or so, from 16% of the population in 2009/10 to just 5.2% on 2015/16 (Government of India 2010; Cancer Institute, Adayar 2016), indicating a decrease in consumption overall, though the highest usage remained in the coastal districts of Pudukottai (19.9%), Cuddalore (12.1%), and Nagapattinam (8.9%) (Cancer Institute, Adayar 2016), areas where the consumption of Jaffna tobacco is also the highest. Furthermore usage in Tamil Nadu remained highest among the over-65 generation (Cancer Institute, Adayar 2016), the most likely users of traditional forms of tobacco, therefore, it is unclear whether the state's reduction necessarily reflects a similar reduction in the consumption of Jaffna tobacco specifically. Given changes in Kerala alone however, which has historically constituted the main retail market for Jaffna tobacco, there is clear evidence that shifting consumption trends are contributing to the decline in Jaffna markets.

6. Conclusion

This chapter explored Jaffna tobacco, looking initially to the process of Jaffna curing and trading, before examining who produces and trades Jaffna tobacco, and how the dynamics involved in production have changed over time. The chapter highlighted dominant class and caste characteristics of the Jaffna market, outlining the clear delineation between traders and farmers, and suggesting that the latter are largely comprised of PCP households that alternate between commodity production and waged work. Furthermore, traders are predominantly Gounder, following a caste monopoly that wiped out earlier Chettiar traders within the market. The market is also shown to have been geographically-centred around the town of Koduvai, from the 1950s to the present-day, with unkempt godowns dotted around the town providing a visible emblem of its decline.

In explaining this decline, the chapter has highlighted factors that are both internal and external to the dynamics of tobacco production by both farmers and traders. Firstly, traders are continuing to profit, however field data indicates that they are shifting away from tobacco and agriculture altogether. Secondly, field findings indicate that improvements in labour's wages and bargaining power are rendering the cost of wage labour increasingly high, and workers difficult to hire. This is important because Jaffna curing has historically relied on high levels of wage labour, required to appropriate the wealth of coconut husks and engender the particular curing process of Jaffna tobacco. Whilst this process is necessary to produce the moist and resilient type of tobacco leaf which characterises Jaffna tobacco, it is also expensive given the labour required to move plants

in and out of ovens three times, burn the correct amounts of coconut husk at each stage, leave plants out to dry, and dip them in sea water. It is a process which is particularly taxing for the bodies of workers, and which always shaped the heavy corporeal traits of exploitation in the sector. Indeed, the increasing costs and decreasing availability of labour all render Jaffna trading more difficult. Thirdly, shifting gender dynamics imply a decline in the potential appropriation of unpaid women's work. Fourth, changing power relations of exchange are also making it harder for traders to drive prices down for tobacco plants. Fifth and finally, increased regulation, and in some cases prohibition, of tobacco commodities, alongside a broader shift away from the consumption of more traditional varieties of tobacco, has restricted the market for tobacco retail, and pushed bigger traders in Kerala out of the business.

This chapter largely highlights the shifting social relations underpinning the appropriation of nature's wealth as driving change. Environmental change is thus not shown to be necessarily deterministic in Jaffna traders' moving away from tobacco. Rather, labour relations are understood to be a means of appropriating nature that is specific to the Jaffna curing process, and thus the increasing expense and decreasing availability of labour required to do this are leading traders to look away from tobacco trading. In short, productive and ecological compulsions interplay tightly in the case under scrutiny. The next chapter looks at the considerably more complex Sun tobacco market, and explores the changing tendencies within production, curing and exchange for farmers and traders there. The Sun and Jaffna markets will be compared in the concluding chapter.

Chapter 8
The Sun market

1. Introduction

This final empirical chapter examines the largest tobacco commodity market in Tamil Nadu today; the Sun market. Much like the case of Jaffna, the Sun market is shown here to be in relative decline, with fewer producers and traders engaged in the market year-to-year. This is driven in part by similar issues to that of Jaffna – labour's upward mobility and move into the industrial sector has rendered it more difficult to find labour, and more expensive to pay for labour. However, the Sun market also comprises very different processes of production and curing to Jaffna, with producers themselves largely taking on the curing and storage of tobacco. As such, there is a closer link between the appropriation of nature and the process of accumulation further downstream of production itself, which will be explored further.

Crucially, the Sun market is shown to be comparatively more robust than Jaffna, with fewer producers and traders leaving the market in recent years. This chapter focuses on both explaining the dynamics of the Sun market, and on analysing why this differs from Jaffna. In relation to the Sun market, I show that farmers' ability to cure and store tobacco affords them increased bargaining power in relation to traders by removing the issue of tobacco's perishability, thus reducing traders' structural power to some extent. The Sun market consequently comprises complex production activities, with primarily capitalist farmers and some PCP historically taking on increased amounts of commodity processing, and accumulating as a result of this. It is further suggested that this is made possible in some part through the free form of energy that producers rely on in order to cure tobacco – sunlight, and the relatively cheap methods required to appropriate it, as opposed to the relatively more capital and labour-intensive process required to cure Jaffna. Sun tobacco is also shown to be more versatile than Jaffna, as it can be utilised in a range of both traditional and modern tobacco commodities, though I suggest that its value decreases when used for the latter as quality is less of an issue in such commodities. This chapter ultimately highlights the fact that whilst the Sun market is also in decline, its comparatively slower decline vis-à-vis Jaffna offers scope for understanding how the appropriation of nature shapes dynamics of production.

This chapter, which also adopts and operationalizes Harriss-White's 'market systems framework' (see previous chapter), is structured as follows: it first provides an overview of the Sun market and

production activities within it, it goes on to examine changing dynamics of labour and ecology within the market in the current era, and looks to shifting consumer preferences and state regulation as further drivers of change.

2. Overview

Markets for Sun-cured tobacco or 'Vara-pugaiyellai' comprise 70% of tobacco markets in Tamil Nadu today (CTRI, Vedasandur 2014).

Table 8.1: ***Curing and trading activities in the Sun market***

Times	***Activities***
Harvest	▪ The plants are harvested in the afternoon after the worst excesses of the midday sun. Harvesting is undertaking using scythes by male labourers only, and plants are laid out to dry on the earth.
+ 3 days	▪ The plants are laid out in the mornings and evenings for three full days. They are stacked together and covered in the afternoons (usually by tarpaulin) to protect them from the worst of the heat. ▪ Only around Oddanchatram and Dharapuram, farmers were able to sell at this 'green' stage (pacche) to large-scale Sun traders who undertook the rest of the curing, similar to Jaffna.
+ 25-30 days (33 days)	▪ The plants are hung from a pandal - a frame erected using bamboo poles tied together with coconut fibre string. They are left on this structure for 25-30 days until they are fully dried out by the sun and have graduated to a deep golden colour. Male labourers erect the pandal whilst female labourers tie plants up. At the end of this period, labourers deconstruct the pandal and untie plants. ▪ In lieu of land for a pandal, some farmers simply repeated the previous process of leaving the plants out on the earth for 20 days, or, more creatively, hung plants from electricity lines on nearby pylons or on a piece of string tied between two trees.
+2-5 days (38 days)	▪ Plants are taken down from the pandal, and leaves and stems are separated. This is a labour-intensive process, as leaves need to be graded according to a three-tier scale; Rasi denoting first-grade; Matam denoting second-grade and Kursu denoting third-grade. In some regions there were two further grades below these, usually referring to very small leaves at the base of the plant or fallen leaves. ▪ Stems are usually sold at this stage to specific traders that cure and process stems. Leaves are tied together in grades and then beaten on a dry floor to remove excess dirt, before being set in large stacks. Leaf bundles generate heat within these stacks through which they are all cured further. Some farmers had specific outhouses or godowns for tobacco stacks, others left them outside covered in tarpaulin, and some used the veranda of their house or even one room. ▪ These activities are all undertaken by female labourers; and these tasks are specialised, thus labourers must have prior experience or be given specific training. This task also exposes labourers to high levels of tobacco stench and dust, and many report vomiting and dizziness the first few times.
+ 2 months (3 months 8 days)	▪ Leaf bundles are un-stacked, turned and restacked every 4 days to begin with. This becomes more sporadic until by the end of two months; it is once every 10 days. This is undertaken by labourers that need to be accustomed to the strong stench of tobacco; thus it is somewhat specialised. ▪ Many farmers choose to sell tobacco as it is at the stage where it has reached the higher price-point of 'cured' tobacco. However given that this is also a 'peak' market point, farmers that have sufficient storage capacity and can continually purchase wage labour choose to store the tobacco for longer.
+ 3-33 months	▪ Within this period, farmers that are able to pay for sufficient labour to continue turning leaves can hold on to tobacco for 3 months to 3 years from the point of harvest. This offers considerable flexibility for those farmers able to do so, and significantly increases their bargaining power in relation to traders.

Table 8.1, author's own, based on fieldwork 2014-2015

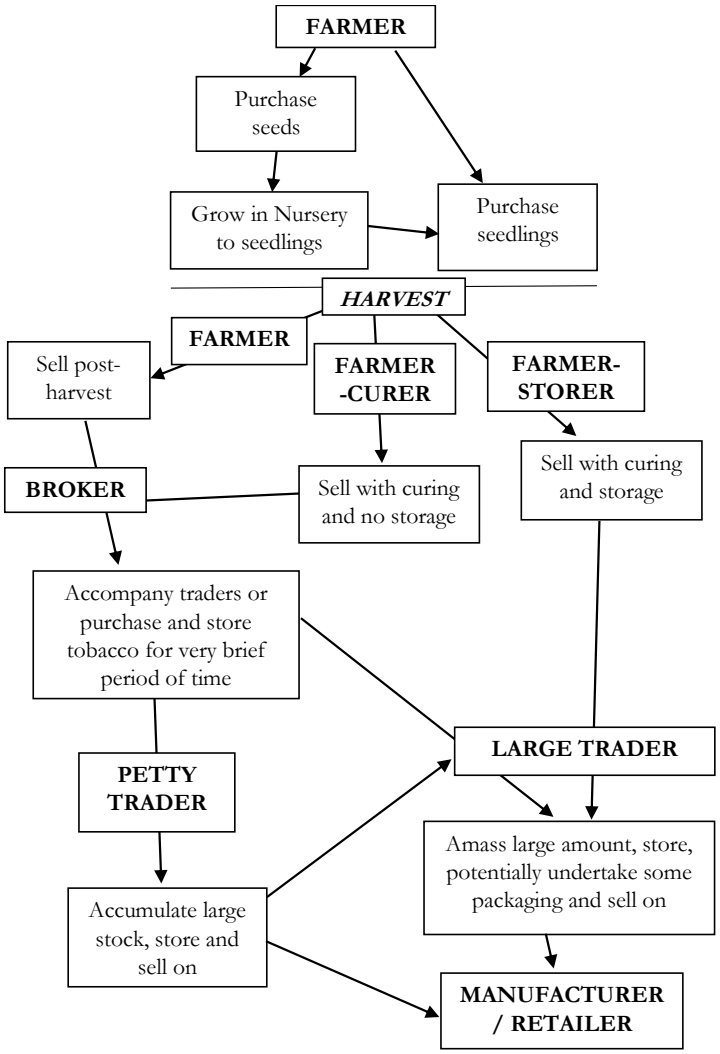


Figure 8.1, *Sun market structure*

Author's own, based on fieldwork 2014-2015

The Sun-curing process is detailed in Table 8.1, as it is currently undertaken. Sun-curing has been in existence in Tamil Nadu for at least two centuries (Buchanan 1807; CTRI, Vedasandur 2014), and produces a cured form of tobacco that can be used in a variety of commodities such as small and large cut-piece tobacco, or mixed cut-tobacco commodities such as Gutka and Paan Parag[147]. Crucially, unlike Jaffna, Sun-curing is minimal and low-cost, requiring bamboo sticks, rope, sufficient land to erect a bamboo frame or pandal, and a cool, dry area to store cured tobacco, to appropriate the main energy source for curing, sunlight, which itself is free. As such, curing can be undertaken at low-cost and on a small-scale, allowing producers to cure their own tobacco and subsequently store it for up to three years. Curing does involve significant labour costs however, as wage labour is required for various stages of the curing process (as detailed in Table 1), and also subsequently for storage, to turn stacked tobacco at regular intervals in order to prevent mould. However once Sun-cured, tobacco immediately reaches a higher rate than green tobacco[148], and if stored, allows farmers to sell at seasonal low-periods, when the post-harvest and post-curing gluts is spent, and they have increased bargaining power in relation to traders when negotiating prices. Sun markets thus afford producers some flexibility in choosing

[147] These are commodities where cured tobacco is mixed with other ingredients, for Paan Parag this includes slaked lime, Catechu and Areca nut, and for Gutka this can also include chemical flavourings and enhancers. See Table 8.2 later in this section for a full description of these commodities.

[148] The precise rates are detailed in Table 8.4 later in this chapter.

year-to-year whether to take on added investments/expenditure in curing for increased profits, and they also provide opportunities for increased accumulation and structural bargaining power in relation to traders. As a result, Sun markets comprise a complex structure when it comes to different types of actors, with no clear demarcation between farmers and traders as was the case in the Jaffna market.

The Sun market structure is shown in Figure 8.1. The market is divided into three producer-types:

- *Farmers:* those that sell their tobacco green prior to harvest;
- *Farmer-curers:* those that harvest and cure their tobacco for the minimal period of three months and then sell; and
- *Farmer-storers:* those that harvest, cure and store their tobacco for up to three years, selling during the low-season.

There are two periods where the Sun market is flooded with tobacco, causing prices to drop: firstly post-harvest, when farmers sell tobacco green (February to April), and secondly post-curing, when farmer-curers sell tobacco with three months of curing (May-August). The period between late August and late April therefore represents a low season, when prices for Sun-cured tobacco rise as farmer-storers hold on to their stock and sell slowly.

Sun producers cultivated tobacco in all three zones in my research area, however as outlined previously[149], tobacco production and exchange are spatially disaggregated, thus market activities for green/cured tobacco vary greatly by region. In Erode and Salem districts (the Northern zone), Sun traders will only purchase cured tobacco, there is no market for green tobacco[150], and thus all tobacco producers in these districts are farmer-curers or farmer-storers. Conversely in Coimbatore, Tiruppur and Dindigul, a minority of Sun-traders would purchase both cured tobacco and green tobacco, with such Sun-traders constructing large-scale pandals to cure amassed green tobacco, and then store it in large warehouses or godowns.

Sun-cured tobacco also comprised regional differentiation, largely due to type of plant and quality of leaf. As outlined previously[151], there are broadly two different tobacco plant types – large, wide and thick leafed-plants (Abirami, Bagyaliakshmi, Munnai and Vairam varieties), and long, thin,

[149] See Table 6.2 in Chapter 6.

[150] It was not fully clear why this was, the most obvious reason seemed to be that these districts comprised no Jaffna markets where all tobacco is sold green, thus there was a reduced demand for green tobacco overall, leading producers to always cure.

[151] See Table 6.1 in Chapter 6.

delicate leafed-plants (Oosi-Kappal variety). Whilst Jaffna-curing only comprises the former, Sun-curing comprises both types of plant, and thus the resulting cured leaf is differentiated. Cured Oosi-Kappal is more likely to be sold as cut-leaf, where a single, cured leaf is cut into three pieces, as it offers a more delicate flavour, whereas cured large-leaf varieties are more likely to be sold to Gutka, Paan, small cut-piece, and Cheroot traders, as all of these commodities involve shredding the cured tobacco leaf, thus leaf type and quality matters less. There are also specific areas where the tobacco plant grows differently and therefore fetches a higher rate. Most notably, Oosi-Kappal plants grown in villages around the town of Edapaddi in Salem district are renowned for the particular thinness and lightness (in colour) of their leaves, and fetch the highest rates at the market. Edapaddi tobacco is cured differently to other types of Sun tobacco – once dried out, it is doused in a liquid made from fermented millet, banana, lemon juice and water, and leaves come out with a specific flavour and are also lightened as a result, it is then always sold as large cut-piece tobacco, to allow its particular flavour to be fully appreciated.

Sun producers and traders came from all five districts that I researched[152]. As outlined previously, Sun-curing allowed producers some flexibility in terms of whether they choose to invest in curing/storage and sell later, or whether they choose to sell green. This flexibility depends on region to some extent – only in Coimbatore, Tiruppur and Dindigul districts did markets for green tobacco exist, however across all five districts, Sun producers were able to choose whether to sell post-curing, or to store tobacco and sell later, thus there was always some level of flexibility. My Sun-market sample comprised 45[153] people altogether, and the composition of the sample was complex, with numerous farmers taking on extra roles such as labourer, broker or trader[154].

[152] Given the lack of clear demarcation between these groups I detail them together here.

[153] This includes two farmers that are double-counted with Jaffna market farmers because they reported selling to both markets.

[154] Farmers were asked about what they had undertaken over the past five years, as not every farmer took on extra roles every year.

Figure 8.2: ***Composition of Sun market sample***

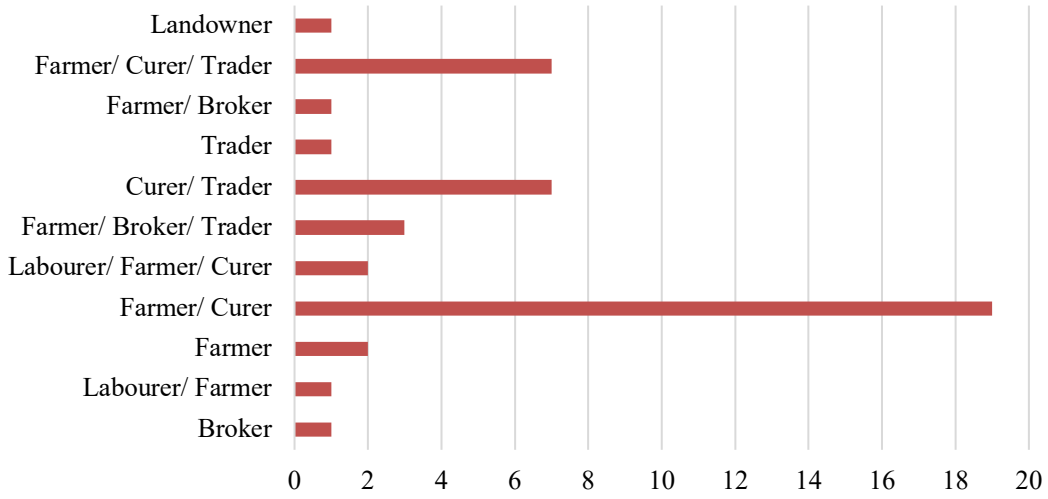


Figure 8.2, Author's own, based on fieldwork 2014-2015

Figure 8.2 shows the composition of the sample[155] – the largest group interviewed were farmers that cured their own tobacco, and after this came traders that cured and stored tobacco, half that also farmed and half that didn't.

Table 8.2: ***Composition of Sun-producer sample by land size (in Ha)***

Landholding class	**Marginal (0-1)**	**Small (1-2)**	**Semi-Medium (2-4)**	**Medium (4-10)**	**Large (10+)**
Sun sample	9%	29%	26%	29%	9%
Kongunadu average	55.9%	19.7%	36.1%	27.9%	8.2%

Table 8.2, author's own, based on fieldwork 2014-2015

Table 8.2 highlights the landholding pattern of Sun producers within my sample, constituting a notably higher-than-average proportion of small farmers, and a lower-than average proportion of marginal farmers and semi-medium farmers, than the Kongunadu average. As this pattern roughly indicates, the class composition of Sun producers among the selected sample was notably skewed more towards capitalist farmers.

[155] Only three out the 45 respondents interviewed within the Sun market undertook no farming at all, these will be explored in the next section.

Table 8.3 offers a break-down of different large traders (see Figure 8.1) based on commodity, region and scale.

Table 8.3: ***Types of commodity and capital in the Sun market***

Type of tobacco commodity	Location	Type(s) of capital	Activities
Large cut-piece tobacco, each piece 1/3 of a full leaf, cured in sugar water.	Tamil Nadu Andhra Pradesh Karnataka – sold in these states	▪ Large, state-based family firms, usually headed by mercantile castes. ▪ Small, Tamil-Nadu based petty retailers selling on a small-scale at the local level, either in permanent tobacco stalls (Paan kadai) or roving stalls at weekly farmers markets.	Leaves cut into three, stored and sold on.
Small cut-piece tobacco, each leaf cut into very small pieces, cured in sugar water.	Maharashtra – sold nationally, and Tamil Nadu, sold locally.	▪ National corporate capital with annual turnover of Rs. 1,000 crore – the *Malpani Group,* a national company with a diverse portfolio including real estate, vacations parks, tea and tobacco. Also Tamil Nadu-based family firms.	Tobacco leaf pulverised, combined with flavourings and packaged in small packets.
Gutka/ Paan Parag[156], powdered chewing tobacco mixed with areca, slaked lime, betel nut, and chemical additives and flavours.	Bihar, Uttar Pradesh, Karnataka – sold nationally	▪ Large commercial firms purchasing numerous commodities (areca, slaked lime…) from different petty traders and comprising large, processing plants to produce and package Gutka.	Tobacco leaf pulverised, combined with flavourings and other ingredients, and packaged in small packets.

Table 8.3; Author's own, based on field findings, 2014-2015

As highlighted, there are broadly three different types of Sun-tobacco commodities that dominate the market today, and large traders for these markets are concentrated in particular Indian states, with large and small cut-piece tobacco being sold locally within the states where traders are based, and Gutka and small cut-piece tobacco being sold nationally. Large cut-piece tobacco is the more traditional variety of chewing tobacco, whilst Gutka is the newest. Small cut-piece tobacco is relatively old, it has historically been sold alongside other ingredients to make paan – a folded betel leaf with tobacco, areca nut, fennel and other ingredients that is chewed over a long period of time[157]. Small cut-piece tobacco is increasingly being sold as a commodity to be consumed alone however, which is new. In terms of market structure, large and small cut-piece tobacco are traded by family firms, whereas the Gutka is only traded by large-scale corporate enterprises. These

[156] It should be noted that this value chain was very difficult to obtain information about because of the Gutka ban in place in Tamil Nadu and most other Indian states by the time of my research, as such, this description is based on limited conversations about this issue.

[157] Paan itself has existed for over two centuries in India, and tobacco was only added as recently as the 17th century by Mughal rulers, after its introduction to India in the 16th century (K. S. Reddy and Gupta 2004).

enterprises also undertake significant further processing of tobacco, whilst large and small cut-piece tobacco is simply cut, stored, and sold on to retailers, with some firms also dousing leaves in a sugar-water solution.

The largest trader that I interviewed was Mr J, the chief buyer for 'The Malpani Group', who were the largest firm within the Sun market in Tamil Nadu. They are based in Maharashtra and purchase 5-6 million kg of Sun-cured tobacco from Tamil Nadu each year, from farmers across all five of the districts that I researched (Mr J, trader 2015). The Malpani Group's main commodity is 'Gai Chaap' which literally means 'cow brand' tobacco, this is a small packet of cured small cut-piece tobacco which is sold for Rs. 3 per packet, and though the tobacco is doused in a solution to give it added flavour, there are no additives alongside flavoured tobacco, thus this product escapes the Gutka ban placed on other mixed chewing tobacco products (Ayyappan 2013). Mr J was a trader who was based in Tamil Nadu. He managed a team of petty brokers across different tobacco-growing regions of Kongunadu that worked exclusively for the Malpani Group, and oversaw the purchase and transport of Sun-cured tobacco annually from these regions to the Group's manufacturing plants in Maharashtra. All the other 'large traders' for other firms came annually from various states during trading season (March-August), using local brokers to enable them to visit numerous petty traders and farmer-curer/storers on any given day, and negotiate rates for tobacco that was either being cured or stored.

In terms of caste, 62% of Sun market respondents (farmers and traders) were Gounder, and 11% were Vanniyar, the latter all coming from Erode or Salem districts. 7% of respondents were Pillai - this is an upper-caste group that were traditionally scribes and accountants to Brahmins (Beck 1972), and all of these were traders in my sample. The sample also comprised one Reddiyar – a caste group originally from Andhra Pradesh that settled along parts of the Kaveri over three centuries ago[158] (Baker 1984a; Damodaran 2008), and two Kulalar farmers – a caste group that were historically potters and clay workers all based in Erode district. There is thus clear penetration of non-Gounder caste groups within this market unlike Jaffna.

[158] This Reddiyar farmer came from one of 18 villages, comprising 300 acres, that were located in Erode district near the town of Bhavani, and he described how all of these villages (all of which are tobacco-growing villages) used to be owned by one wealthy Reddiyar landowner that eventually sold his land off in parcels and moved away from the area (Mr N, farmer 2015a). He said that there remained a large number of Reddiyar farmers in this region particularly, and that they had settled here over five centuries ago (during the Chola empire), their ancestors having come as invading warriors from Andhra Pradesh, and been rewarded for successful conquest with land along the Kaveri river (Mr N, farmer 2015a).

3. Earnings in the Sun market

Field findings suggested that the Sun market comprised profits and some evidence of accumulation – the reinvestments of such profits in expanding production – across producers, curers and traders. Table 8.4 shows a cross-section of Sun farmer/curers in terms of land size[159] and reveals that in 2013/14, a number of farmer-curers were able to make considerable profits.

Table 8.4: ***Remuneration data for cross-section of Sun farmers in INR***

Name/ caste	Agrarian actor type	Land size (Ha)	Tobacco planted (Ha)	Non-tobacco profit in previous year	Tobacco profit	Borrowing
Mrs W Gounder	Farmer and curer	0.81	0.81	₹288,000/annum from weaving; ₹23,760-39,600/ month from cow's milk.	₹75,000	Bank loan of ₹300,000/ annum, with an interest rate of 1.5%
Mr X Vanniyar	Farmer and curer	1.42	0.81	₹185,000 from cotton, rice, leasing tractor.	₹90,000	₹60,000 from coop, interest-free within one year.
Mr A Vanniyar	Farmer and curer	2.02	0.2	₹60,000 from groundnuts and other crops.	₹40,000	₹130,000 from the bank, interest rate of 3.3%
Mr M Vanniyar	Farmer and curer	2.43	0.4	₹90,000	₹50,000	None
Mr G Gounder	Farmer and curer	3.24	1.62	₹200,000 from groundnut and other crops.	₹200,000	Borrows unknown amount from Gounder moneylenders.
Mr J Gounder	Farmer and curer	4.05	2.02	₹50,000	₹100,000	Borrows ₹100,000/ annum at 7% interest.
Mr P Gounder	Farmer, broker and trader	4.05	3.24	₹750,000 from maize, cotton, Bengal gram and watermelon, and tobacco cultivation.	₹10,000 from trading.	₹15,000 from local moneylenders, no interest.
Mr AG Gounder	Farmer and curer	10.12	6.07	₹700,000 from sesame, cassava and ladies finger.	₹1.2m	None

Table 8.4, sourced from interviews and field notes conducted in Tamil Nadu, 2014-2015

This is with the caveat that as outlined previously[160], this year saw tobacco rates climb particularly high, though such 'peak' years' were not unique overall for tobacco. The table further reveals high

[159] The table relies on a limited number of interviews where farmers provided good data of profits (laabam), thus it is not representative, rather; it represents available data and offers a cross-section from this.

[160] See Section 3b in Chapter 6.

levels of borrowing among tobacco farmers that are marginal, small and medium. It must be noted however that borrowing does not necessarily indicate indebtedness. Certainly, for petty producers such as Mrs W and Mr A, agrarian income serves as a means of continually paying off bank loans, which incur penalties if not repaid within one year, thus they are unable to accumulate and expand production. However for capitalist farmers such as Mr P, loans represent a means of relieving short-term cash flow problems, with lags reported between selling tobacco and receiving payments from traders.

Table 8.4 shows that there is no clear relationship between area under tobacco and levels of profit in a number of cases. Rather, the differentiation in profits was largely due to the extent to which farmers were able to appropriate water, as the next section will go on to detail. Crucially, farmer-curers in this market were notably more enthusiastic about tobacco than was the case among Jaffna traders, and several had made large investments such as re-boring wells or installing drip irrigation within the past five years. Such investments were not widespread, but were certainly evident, and some traders indicated in interviews that their profits were increasing, thus there was clear evidence of accumulation. To explain why this picture differed from Jaffna, the next section explores the specific dynamics within the Sun market, and how these have changed over time.

4. Shifting dynamics of the Sun market

Sun farmer-curers and traders have historically taken on far lower levels of capital investment than Jaffna traders in order to cure and store tobacco, as the appropriation of sunlight is cheaper. Burkett (1996, 334) suggests that this is one of nature's 'means of production produced by nature prior to their being appropriated and/or processes by labour', thus sunlight is yet to be appropriated at the point at which it is appropriated in the Sun-curing process. It is primarily farmers that undertake mercantile activities such as curing and storage, this means that accumulation downstream of production is more directly shaped by production itself. Therefore, the increased difficulties faced by producers in appropriating soil wealth, as outlined in Chapter 6, directly affect whether they are able to take on curing and storage, and the extent of storage that they undertake. Conversely, the increased profits that such producers accrue from being able to take on curing/storage year-to-year has enabled Sun farmers to more easily afford the levels of investment and expenditure required to successfully cultivate tobacco.

Today however, field findings indicated that the rewards that came with the risks of curing and storing are no longer so visible, as farmer-curers suggested that the rising costs of appropriating soil wealth and curing tobacco are not met by increasing profits through exchange. Despite evidence of continued investments in production among some Sun farmer-curers, they were also

largely looking for the next generation to leave tobacco and agriculture more generally behind. The Sun traders I interviewed echoed this sentiment, many of them came from multiple generations of tobacco traders, but did not see a future in this industry for their children. This section thus details the dynamics of how Sun farmer-curers[161], who undertake the lion's share of productive activity within the market, have historically profited, and how such dynamics are changing today, with reference to curing and storing tobacco alone[162].

The greatest expense within Sun-curing today is wage labour. For farmers that take on curing alone, labour is needed in order to undertake harvest, lay plants out on the earth for three days at specific times, erect bamboo frames and hang plants from these for one month, take plants down, strip leaves from stalks, sort and bundle leaves by grade, and then stack bundles[163]. Farmers choosing to store tobacco further require regular wage labour to un-stack and restack bundles every two weeks in order to prevent moulding.

As outlined previously[164], average labour costs for harvest alone came to ₹13,342/acre[165], and this only includes cutting plants from the earth and laying them down on the first day of harvest. To get from this point to cured bundles of graded leaves and stems, the earliest point at which Sun farmer-curers can sell tobacco, costs ₹16,636/acre[166] on average. Therefore, including all labour costs for production, average labour costs for farmer-curers (before storage) came to ₹43,333/acre. In terms of labour costs for curing alone, data revealed a very wide range in terms of reported expenditure per acre, climbing from ₹7,600/acre to ₹30,000/acre. Variation across this range was largely driven by the extent to which farming families undertook labour themselves, or through informal arrangements within extended families to avoid *hiring* labour, with the farmer that reported costs of ₹7,600/ acre stating that he and his extended family undertook 'extensive' labour

161 This term will be used to collectively refer to both 'farmer-curers' and 'farmer-storers' as outlined in Figure 8.1 earlier in this chapter, as farmers that undertook curing chose year-to-year whether to store tobacco or sell immediately post-curing, thus the distinction between these two groups was not clear.

162 Chapter 6 has detailed the increased difficulties associated with Sun tobacco production, specifically with appropriating nature's wealth, thus I focus here on curing and storage alone, and how this has changed.

163 Although as will be reiterated later in this section, the activities required to appropriate sunlight are comparatively less labour-intensive than those of Jaffna, both due to scale and labour-days required for the continual burnings in Jaffna ovens.

164 See Table 6.5 in Chapter 6.

165 This is calculated from a data set comprising 25/68 farmers that gave full data for labour costs across different activities.

166 This is calculated from a data set comprising 11/45 Sun market respondents that gave full data for labour costs across curing activities.

on their own thottam to reduce labour costs (Mr H, farmer 2015). On the other end of the scale, Mr N, a farmer-turned-Congress politician in Erode district, would not specify his expenditure on labour but continually referred to it as 'a lot' because he and his family did not work on their thottam at all, and thus he saw his role as largely charitable – providing an income to wage workers on his thottam and not to himself, 'I don't get anything [from tobacco], all I get is a minus… I haven't gone for even one day into the farm and worked, so all I get is minus… these ladies come and do work and so they get profits' (Mr N, farmer 2015a)[167]. Other methods to reduce the wage bill included undertaking tasks such as tying plants to the pandal over several days, though this risks plants drying out as a result.

As outlined previously, wage rates for labour have risen over recent decades, driven largely by factors that are external to rural accumulation itself such as increased labour absorption by nearby industries, and increased bargaining power resulting from state welfare (Carswell and De Neve 2013c, 2013a; Heyer 2016a, 2016b). The rising wage rates and concurrent reduction in historical forms of labour exploitation such as tied labour, albeit unevenly across the region, have hit Sun farmer-curers as they rely on wage labour for both production and curing. Field findings suggest that farmer-curers now face increasing expenditure in order to undertake said curing, constituted by increased wage rates and other factors such as labour's tightened working hours, the use of labour contractors in some regions, and added expenses for tea/snacks in order to attract labour in areas of real scarcity. For example, Mr I, a Sun farmer-curer from Erode district, complained 'the labourers just don't want to come anymore, they ask for ₹250, and when they do finally come they say they want tea and bonda[168]… where can we go?!' (Mr I, farmer 2015). Other farmers reported having to buy lunch for any wage labourers that worked for them, stating repeatedly that this would not have been necessary even five years ago.

Furthermore, as with Jaffna, increased wage rates were met with no discernable rises in labour productivity. If anything, labour's increased bargaining power was resulting in reduced exploitation of labour. Carswell and de Neve (2013b) have argued that labour's increased agency in Tiruppur in recent years has reshaped the garment industry itself, including the division of labour, and the

[167] Mr N is the Reddiyar mentioned earlier in this chapter in Section 2c, and was a Congress politician and thus derived the majority of his income from bribery through patronage according to Mr H, a capitalist farmer from the same region who accompanied me to visit Mr N (Mr H, farmer 2015). Mr N's comments on 'minus' income are thus only with regards to tobacco, which he largely continued to grow given how important it was to the economy of the town in which he was located, thus affording him political credibility in representing fellow tobacco farmers.

[168] This is a South Indian snack – a deep-fried ball of mashed, curried potato.

ways in which capital procures labour – increasingly through labour contractors that offer more flexible working conditions. The same can certainly be said for the rural labour force in Kongunadu, and for Sun tobacco curing in particular. The scarcity of wage labour, combined with the particularly undesirable nature of tobacco work, has meant that farmers have restructured the way harvest and curing is undertaken – now in set hours over several days and with breaks for food, rather than in one day, working from dawn until dusk as was previously the norm, in order to retain sufficient wage labour. Furthermore, as outline previously, caste plays a role in the shifting dynamics of labour exploitation, as Gounder and Vanniyar farmers are increasingly forced to attract labourers from primarily Dalit caste groups. As such, fieldwork indicated that caste-based forms of oppression as reported from the 1980s (Heyer 2000) have given way to some extent and in some regions, with farmers forced instead to employ more familial relations to retain labourers in the high season, for example through the provision of food and snacks, and by offering labourers 'treats' such as meat on Sundays. Thus in the case of both Jaffna and Sun markets, the tightening of labour markets has shaped dynamics of accumulation. The outcome of these shifts was that whilst Sun farmers continued to pay for labour to undertake curing, they were looking for subsequent generations to leave tobacco in the long term.

Shifting gender dynamics are also relevant to the Sun market. As outlined in the case of Jaffna, women in farming and trading households within the Sun market historically undertook the majority of household and reproductive labour, and also worked on their own thottams[169]. Also in this case, field findings indicated that women's unpaid labour was largely mediated by class and age to an extent, as younger, wealthier Gounder women within Jaffna trader households were increasingly able to undertake higher education as a path out of agriculture and away from any form of paid work. Yet the Sun market also highlights how different castes conjugate with class in order to structure women's paid and unpaid work, and how this is changing over time. For example, in contrast to Gounder households which had generally undergone some historical accumulation over the past few decades and thus saw a difference in levels of waged labour between younger and older women, in Vanniyar households, all women generally undertook higher levels of household, farm and waged labour. I would suggest that a number of factors contributed to this, firstly, unlike Gounders, Vanniyar families were less likely to have had a non-farm income source[170], and had thus not undergone the same levels of historical remuneration that Gounder

[169] As indicated in the previous chapter, analysis here is based on observations and informal conversations with women; thus analysis is largely foregrounding dynamics rather than broader systematic arguments.

[170] As compared with Gounder PCP households which were more likely to have a member of the extended family engaged in petty industry (Mahadevan and Vijayabaskar 2014; Chari 2004).

families had, rendering it less likely for a Vanniyar woman to undertake higher education to the same extent as Gounder women. A second possible reason is that in my field findings, Vanniyar families generally comprised more children than *Gounder* ones, with almost all families sampled in the latter community compromising only two children[171]. As a result of this, the burden of childcare was likely to be relatively lessened for Gounder women as opposed to Vanniyar. In contrast, women in Pillai and Muslim Sun trader households undertook no waged work at all, and very little domestic work due to the use of households servants in relation to women in farming households. These findings are all in keeping with the broader literature which suggests that women from lower caste communities are more mobile and face the double burden of waged and unwaged work, where women from higher caste communities face decreased mobility and also decreased exploitation through waged work (Boserup 1989; Kapadia 1995a; Abraham 2013; Neetha 2013).

The complex differentiated ways in which class and caste intersect speaks to how conjugated forms of oppression operate (Shah et al. 2017), where field findings indicate that the particular upward class mobility of the Gounder caste community manifests differentially to that of the Vanniyar community, leading to different forms of gendered oppression through restricted mobility and waged work respectively. Such notable configurations of conjugated exploitation are more visible within the Sun market than that of Jaffna. For example, I encountered several wealthier capitalist farmer-curers and traders that undertook a more distant form of agriculture[172], where they resided in a town or city for the majority of the year and managed their thottam through on-site labour-managers, always of their own caste group, that lived on the thottam and oversaw day-to-day activities. In these households, women undertook less household work and farm work, and within my research findings[173] such households were always Gounder, with such farmers/traders primarily engaged in industrial enterprises in Coimbatore or Tiruppur. Age also played a role where households had grown wealthier over the last generation, with older women undertaking large amounts of household labour, and younger women more likely to be educated and living away from the thottam. Again this generational class contrast was mediated by caste, prevalent in

[171] See Appendix III.

[172] This arrangement did not exist among Jaffna traders, and the reason given was that Jaffna curing required more attention and involved more complex activities than Sun-curing. Chari (2004) has highlighted the characteristic micro-managerial tendencies of Gounder producers and later industrialists, and thus the hands-off form of management undertake by a minority of wealthier Sun farmer-curers and traders, whilst common among other farming communities in India , spoke to their increasing lack of commitment to agriculture.

[173] I refer here to households were I was able to interview someone and also those that I learned of through meeting farmers/ traders and not formally interviewing them, the 'encounters' mentioned in Chapter 3.

Gounder households in particular, the three Pillai households and the Reddiyar household within my sample, whereas in Vanniyar and Kulalar households, younger women were generally not in higher education.

Again, the exploration of shifting gender dynamics here gives some indication of a broader pattern away from unwaged work on the thottam among women. In fact, women's disdain for agriculture seems in line with some of the dynamics of livelihood reorientation away from agriculture outlined in Chapter 6. As one Vanniyar Sun farmer from Salem district commented, 'For our daughters, whenever they see someone who has left farming they jump at the chance to marry them and get out of this [farming]!' (Mr F, farmer 2015). Yet there were also instances, in even capitalist farmer-curer households, where older women who had retired from thottam and godown labour in the last decade were forced to return to it due to problems in procuring and paying for wage labour, whilst continuing to undertake significant household labour. As such, despite field findings indicating an overall shifting patriarchal norms, there were also instances where women continued to act as a sort of reserve army of labour, highlighting the resilience of traditional 'old' forms of gendered oppression in rural households, co-existing with the 'new' gendered dynamics.

The issue of corporeal exploitation is also relevant to the Sun market. Sun tobacco cultivation and curing involves excessive handling of tobacco leaves, though the plants are not smoked as is the case in Jaffna curing, thus the same extent of respiratory issues associated with Jaffna godowns were not evident. The central form of corporeal (self-)exploitation in Sun markets is through Green Tobacco Sickness or GTS (Achalli, Shetty, and Babu 2012), which despite the name occurs even when handling plants post-harvest. There was also some evidence of respiratory issues as the pungent smell of Sun-cured tobacco when stored in godowns was quite overpowering. Newer labourers reported feeling dizzy and sick when exposed to it, and I certainly experienced these symptoms upon entering areas where Sun-cured tobacco was stored, though far less severe than in Jaffna godowns.

In terms of who engenders exploitation, in the case of Sun markets the complex material relations of the market mean that farmer-curers significantly damage their own bodies as well as those of hired wage labourers in the process of harvesting and curing their tobacco[174]. Unlike Jaffna traders who largely manage the process of curing tobacco plants and thus spend little or no time actually

[174] The question of whether this form of exploitation was entirely intentional is more complex, given that the majority of Sun farmers did not necessarily believe that handling or even consuming tobacco entailed any ill-health effects. That does not mean however that the material process of exploitation did not take place, which is what I analyse here.

undertaking labour within their godowns, the majority of Sun farmers undertook significant labour on their own thottams both during cultivation and, where applicable, the curing of their tobacco. Such family labour was increasing in the current era due to difficulties in procuring wage labour, for example, Mr Y, a Sun trader who farmed tobacco for decades, commented (Mr Y, trader 2015):

> *'This work doesn't suit people who haven't done it before, it's too hot for them and they end up being sick. The older labourers can cope with the smell, the new labourers say 'Oh my good what is the awful pungent smell I can't stand it!' but if you look at me, even the children in our house are used to it, they play happily here [in the godown]'*

Not only did he and his wife expose themselves to tobacco, but their children were also quite used to handling tobacco and inhaling the fumes of Sun-cured plants, thus the degradation of labouring bodies seeped into the farming household itself.

As Mr P noted in his comments, finding 'new labourers' to undertake Sun-curing was difficult given the relative increased bargaining power of labour in the past decade or so, and the particularly bad working conditions associated with tobacco labour. Field findings therefore indicated that rather than increasing levels of corporeal exploitation, Sun farmer-curer families were increasingly undertaking labour associated with tobacco production and curing themselves, and incurring health issues as a result. The difficulties associated with handling tobacco thus spoke to the broader disdain for tobacco cultivation expressed among younger members of farming households. Finally, the shifting dynamics of market exchange are notable in the case of the Sun market. Unlike Jaffna, there is no clear demarcation within the Sun market between 'farmers' and 'traders', as farmers themselves take on curing and even storage, thus allowing them to overcome two key areas of vulnerability that Jaffna farmers are subject to – the perishability of the crop, and also the price drop that characterises the post-harvest market. Although marketing remains isolated on thottams, the majority of Sun farmers cure their crop and sometimes store it, allowing them to increase their structural power within the market. In the case of petty producers in particular, this structural power is highly significant in shifting their relationship vis-à-vis the extractive classes above them.

Writing on structural power in industrial class relations, Selwyn (2013, 78) argues that it '…accrues to workers on the basis of their position in the production process and their ability to disrupt it'. Whilst Selwyn is writing specifically about the clearer class antagonisms between capital and labour within industrial settings, his definition is also useful in thinking about exchange relations within the tobacco market to an extent, and the position and power of farmers within it. Farmers that

cured and/or stored tobacco reported significantly increased bargaining power with traders. For example, one petty producer from Erode district stated (Mr M, farmer 2015a),

> *'The traders come and say "Oh there is a ban so the rate has dropped", but they are only going to buy if we sell, if we don't give tobacco to them they can't buy it. It's our decision to give it, we say "If you buy it for a good rate we will sell, otherwise we don't have to" – that is our prerogative'*

Another capitalist farmer-curer from Erode district who also practices law and thus uses this to supplement his agrarian income stated (Mr B, farmer 2015b),

> *'The traders say that there is a ban and so we don't sell to them, we hold on to the stock and sell it slowly over time… they say it to bring the rate down, but if we hold on to our stock for six months to wait for the rate to come back up; we can sell it slowly and profit that way'*

These descriptions of market exchange starkly contrast those of Jaffna farmers selling green, who complained of being powerless against traders' myths and the ensuing low rates that they offered for green tobacco. Sun farmers were conversely able to hold on to their tobacco and sell when they desired, generally destabilising the power of traders and brokers in being rate-fixers. Producers that took on Sun-curing were therefore disrupting their 'position in the production process' (Selwyn 2013, 78) through overcoming tobacco's perishability.

At least this has historically been the case. As a result of this dynamic, the Sun market has historically comprised very few 'petty traders'[175] or merchant's capital in the more classical sense (Harriss-White 2007, 334), because the relative structural power of farmer-curers means that market exchange does not offer significant accumulation for such petty traders. Today however, the increasing costs of cultivation, particularly with regards to water and labour, mean that despite their sustained structural power, farmer-curers suggested that market exchange does not necessarily enable tobacco farmer-curers to recoup expenditure. They indicated that despite high rates for cured tobacco through exchange in years such as 2013/14, the expenditure required prior to this to appropriate soil wealth – re-boring wells, boring new wells, installing drip irrigation, hiring wage labour, and so forth – is increasing at a faster rate than the price of cured tobacco. This picture is, as with all of the changes taking place, quite differentiated across my research area, with regards to ecology and labour markets in particular. Nevertheless, field findings indicated reducing levels of profit among Sun farmer-curers. This does not conversely mean that their

[175] Namely those traders that amass cured tobacco and simply store it in order to sell on to large traders.

structural bargaining power is decreasing, therefore there are no increased opportunities for profit for traders further up the market, rather that the costs of appropriating soil wealth and paying for labour are outpacing gains made through exchange. Both Mr M and Mr B quoted earlier in this sub-section were adamant that their children would not return to farming, and in fact Mr B himself already practiced criminal law in the local court system in order to keep his thottam running, both cited rising cultivation costs and decreased profits from farming and curing as the reason. Thus although the Sun market has historically offered increased structural power and therefore increased opportunities for accumulation to producers, there is some indication that the levels of profit historically enjoyed are now breaking down.

5. Here comes the Sun: curing processes compared

Finally, I come to sunlight. Despite being one of a number of 'means of production' contributed by nature to the growth process (Burkett 1996, 335), I highlight it separately here as a point of comparison with the equivalent energy source in Jaffna – burning coconut husks – to indicate the very different types of labour and capital requirements for its appropriation. In leaving plants out to cure under the sun, initially on the ground and then later on pandals, Sun-curers are able to appropriate the sun's energy for very low cost, namely expenses for equipment and labour, and to do so with no risk of depletion of said energy source, unlike coconut husks which need to be continually purchased. Equipment and raw materials for Sun-curing are also quite cheap, and remain largely unchanged, comprising bamboo sticks and coconut husk rope, both of which are negligible in cost. Whilst labour is expensive, it is required both on a small-scale, given that Sun-curing is done by individual farmers, and over a short time period, for lifting plants onto pandals and then to take them down, a contrast to the sustained labour force required to undertake Jaffna curing. In terms of storage, the majority of farmers that stored simply did

Image 8.1: ***Tobacco plants hanging on a pandal in Erode district whilst being Sun-cured***

Author's own, taken 20.01.2015

so in a room of their house, or an existing outhouse such as a barn, few had constructed specific storage areas given the low volumes that they oversaw. Unlike the other forms of natural energy appropriation that have been outlined thus far, the sun is unique in its inability to deplete, at least until climatic conditions or astronomical conditions as they currently stand shift drastically (see D. Taylor 2012 on "The end of the sun"). As such, sunshine represents an infinite source of appropriation for capital, one that is not subject to the notion of 'limits' which drives much of Marx's conceptualisation of the metabolic relationship between man and nature (Foster 2000).

Additionally, the sun's continual energy is, as Burkett suggests (1996, 334) continually produced by nature, to then be appropriated through the labour process. Thus it is not a commodity, unlike coconut husks (for Jaffna curing), and so it does not need to be purchased, handled, disposed of, or altered in any way – it is free and unyielding during daytime in the period when curing takes place, February to May. Furthermore, its impact upon tobacco plants is profound. Sunlight transforms tobacco plants into a new commodity, cured tobacco, from perishable, green crops that leave producers beholden to price-fixing traders, into cured, resilient plants that can be stored, affording producers with increased bargaining power and thus fundamentally transforming their structural power. This is operational on a small-scale, allowing individual farmers to become curers. As such, the contrast between the sun as an infinite source of nature's wealth which is cheap to appropriate, as opposed to coconut husks as both finite and more expensive to appropriate, highlights to some extent the different ways in which nature is implicated in commodity production across Sun and Jaffna markets.

Overall, findings summarised in the previous sections so far suggest that in the Sun market, labour is becoming more expensive, the gendered division of labour is altering in complex ways, and the burden of unhealthy tobacco work is increasingly shifted onto farming families themselves. Therefore, in addition to reduced gains at the market reported by Sun farmer-curers, these dynamics give some indication of why Sun tobacco farmers and traders are also looking to move away from farming. In addition to these shifts, this section has also pointed to the contrast between the main energy source for curing for both Jaffna and Sun markets – coconut husks and sunlight respectively. Specifically, whilst coconut husks are finite, and require large-scale equipment and labour forces to render their burning and the subsequent curing of tobacco profitable, sunlight is free and infinite. This therefore gives rise to a different set of requirements vis-à-vis capital and labour, and drawing on Baglioni and Campling's concept of indeterminacy as something to overcome in commodity production (2017), appropriating sunlight as an energy source engenders cheaper and more controllable labour relations than those required to appropriate the energy of burned coconut husks. The patterns of capital and labour required to appropriate nature thus offer

some indication of broader dynamics of profit and even accumulation across these two markets. The increasing costs of labour and difficulties in procuring labour are less of a problem in the appropriation of sunlight than of coconut husks, as the former requires far less labour. Therefore, the ease and cost-effectiveness of appropriating sunlight vis-à-vis that of coconut husks, along with the structural power afforded to farmer-curers, renders it more attractive to undertake in the current era of environmental depletion.

6. Tobacco control and shifts in the overall market

Dynamics within the Sun market are ultimately changing in complex and varied ways. Once again, these depend upon the broader regulatory context and shifts in consumer preferences and state regulation. As outlined in the previous chapter, a specific ban on Gutka commodities where chewing tobacco is mixed with other ingredients such as betel nut, slaked lime, and spices has been sweeping across Indian states since 2012, with the majority now upholding some form of the ban (Ayyappan 2013; Dr Prakash Gupta 2014). The impacts of this upon the Sun market in Tamil Nadu are complex. Crucially, it should be noted that only a minority of Sun tobacco from the state is purchased by Gutka traders. Farmer-curers and traders in the Tamil Nadu Sun market reported that historically, such traders have sourced their tobacco from northern Karnataka and Bihar, and that it is only in the past two decades that such traders are making their way further south to Tamil Nadu. As such, the actual proportion of Sun tobacco going into such value chains was very small, estimated at less than 5% of all Sun tobacco sold (Mr J, trader 2015).

Furthermore, as outlined previously, a survey by the Adayar Cancer Institute reported that 90% of smokeless tobacco users in Tamil Nadu had no problem in procuring Gutka and other smokeless products at local shops, thus circulation of banned commodities persists, however users all documented price increases of up to 200% in purchasing banned Gutka products such as Haans and Paan Parag (Cancer Institute, Adayar 2016). Gutka production and manufacturing has thus been pushed into the shadows by the ban, but has not ceased. Moreover, the ban has enabled a specific group within the market to profit, namely large processors and traders. The rise in Gutka commodity prices has not been met with any corresponding rise in the rates offered to Sun farmer-curers selling to Gutka traders. I also spoke informally to tobacco stall owners from Erode, Tiruppur and Dindigul districts, all of whom continued to sell Gutka, but kept it out of plain sight, thus only selling to customers that specifically requested it. All reported that the increase in retail price reflected an increase in wholesale prices – they themselves kept the same profit margins, and certainly their prices for different Gutka commodities were identical across these three districts.

Thus the price increase of Gutka suggests that large processors/ traders are increasing their share of profits whilst taking their manufacturing activities underground[176].

Beyond the Gutka ban, in terms of general tobacco control measures, Sun farmer-curers reported the refusal of state support in the form of loans or subsidies for drip irrigation when tobacco was one of their cultivated crops, and traders reported increased taxation for tobacco trading in the case of the big cut-piece tobacco companies that were liable for the rise in VAT to 30%, put in place in late 2014 (Commercial Taxes and Registration Department 2015). This resulted in a general despondency among farmer-curers over the state's attitude to chewing tobacco, particularly given its sustained support for FCV tobacco in Karnataka and Andhra Pradesh. Tobacco farmers and traders also expressed anger at the apparent fallacy of arguments made by the state citing tobacco's ill-health effects, perpetuated by the state and central governments, and by international institutions. As one angry Sun trader told me (Mr Z, farmer and trader 2015),

> *"If you are going to write anything, say that people have been working with this [chewing tobacco] for generations without any problems …(indicates an old gentleman labourer coming towards us) The man coming towards us is about to be 90 years old, three generations of his family have worked in this tobacco business...and he is constantly chewing tobacco - I'm telling you to give you an idea; he has always been around tobacco; he has become old and look how well he is walking; with full strength!"*

Certainly, the majority of traders were unwilling to admit that chewing tobacco harboured any ill-health effects, and those that did were at pains to point out that in comparison to smoked tobacco, chewing tobacco was far better. Overall however, the Gutka ban and tobacco control measures did not have any great outcomes as of yet. Farmers generally obtained subsidies and loans for cultivation by specifying non-tobacco crops in formal documentation, and although there was a broader move away from tobacco farming, this was more likely due to the general process of livelihood orientation away from agriculture that was underway across the region. Thus whilst there were no clear material impacts from the increase in tobacco control, there was a general sense of despondency around the Gutka ban and tobacco control measures, and the ensuing demonization of tobacco as a form of livelihood by the state.

[176] I was unable to speak directly to any Gutka traders as the two that I encountered refused to be interviewed, and farmers selling to such traders did not want me around in case the traders became suspicious as to my intentions. This was because the trading and manufacture of Gutka was banned in Tamil Nadu and in the states where they came from, and so they were undertaking illicit activities and were therefore unwilling to talk about them.

Independent of state regulation, consumer preferences for chewing tobacco commodities are shifting. The Sun market is facing a notable change in consumption preferences towards Gutka and small cut-piece tobacco products, and away from large cut-piece tobacco[177]. Large cut-piece tobacco is very much a localised, traditional commodity, with Tamil Nadu districts and even specific villages comprising varied preferences for the size of the cut leaf pieces, and the solution that they are doused in when cured, usually a variation of 'karupatti' – palm sugar solution. The local varieties have historically had restricted consumer bases, as variations in the commodity from region-to-region mean that traders can only retail a specific type of tobacco for a limited area. As such, traditional varieties have given rise to smaller, family firms that retail within specific states or even parts of states, and prepare the cut-piece tobacco in subtly different ways for different regions. Yet in recent decades, large cut-piece tobacco has been increasingly replaced by nationally-produced, more homogeneous products, such as Gutka, and small cut-piece tobacco. The latter constitutes the majority of the Tamil Nadu market today. The largest small cut-piece company purchasing Sun tobacco in Tamil Nadu is the Malpani Group, and after this there are numerous Tamil Nadu state-based small cut-piece tobacco companies – the three most notable being 'Taj Mahal', 'Kalaiman' and 'Pasumark', all based in western Erode district. These companies all produce a standardised, packet form of small cut-piece chewing tobacco, doused in some variation of karupatti, which was increasingly favoured by chewing tobacco consumers both to consume alone and in paan. The change in preferences is driven in large part by age, whilst farmers and traders over the age of 40 generally reported that they would only chew the local variety that was specific to their region, younger users that I encountered generally consumed a form of Gutka or small cut-piece tobacco.

The impact of this shift upon accumulation is potentially significant, as whilst large cut-piece tobacco requires leaves that are whole and of a high-quality (1st grade or Rasi leaves), small cut-piece tobacco and Gutka commodities generally require lower grades of leaf that have undergone curing successfully, as leaves are eventually shredded during processing. To put it simply, the whole process of grading leaves and the different rates for leaves that comes from this, particularly the rates for Rasi which constitute 70% of the plant and represent the best rates[178], become simplified in small cut-piece tobacco and Gutka value chains. Whilst small cut-piece tobacco commodities still require higher-grade leaves, as these have taken on Sun-curing and the flavour from this to the highest quality, thus ensuring the taste of the final product, they do not require a large quantity of

[177] See Table 7.3 earlier in this chapter.

[178] See Section 4bi in Chapter 6.

such high quality leaves, and Gutka does not require them at all. As a result, traders from these commodity markets are slowly driving down the rates they offer to farmers on this basis, as the requirement for Rasi leaves and the concurrently high rates that they command is weakened with small cut-piece tobacco and Gutka commodities.

In years such as 2013-14, when the demand for tobacco was outweighed by the amount cultivated, Mr J, head buyer for the Malpani group, which produces small cut-piece tobacco, reported instructing his commission agents to pay the full rate for Rasi, Matam and Kursu leaves, and to purchase all three, thus the impacts of rates being driven down by a general lowering of leaf quality requirements was not evident. However farmers talked about the impending impact of fewer large cut-piece tobacco traders as something to be wary of in coming years, and as having had a noticeable impact on prices over the past decade, as the number of large cut-piece tobacco consumers waned year-to-year, with no new markets for this commodity, and the turn towards cheaper, pulverised tobacco commodities grew, devaluing the historically high prices placed on strong, well-cured Rasi leaves[179].

Whilst the state-level and national ban on Gutka has had limited impacts on the Sun tobacco market in Tamil Nadu, a broader shift away from higher quality, traditional tobacco commodities and towards mass-produced, homogenised commodities has had a limited effect in lowering prices for cured tobacco. The entrance of Gutka traders represented new markets for Sun producers to some extent, yet the concurrently low prices offered by such traders dispelled some of this excitement, and thus farmer-curers generally painted a bleak picture of how quality was being replaced by quantity, and how the state's sustained attack on tobacco in the form of the Gutka ban and general tobacco control measured rendered this an undesirable marker, despite continuing profits.

7. Conclusion

The Sun tobacco market, even more than the Jaffna market, shows complex features, actors, and changing dynamics. In a similar vein to Jaffna, the increasing wage rates and bargaining power of labour, increasing expenditure in procuring water, and increased opportunity for accumulation and wage work outside of agriculture – have shaped dynamics within the market. Sun farmer-curers find it increasingly difficult to procure and pay for wage labour, which is required to appropriate soil wealth in order to cultivate and cure tobacco. Furthermore, field findings indicate that

[179] I do not have longitudinal data on prices and thus this observation is based on comments made by numerous Sun farmer-curers and traders.

increasing expenditure on water has significantly added to the costs of cultivating tobacco. This means that the rewards of curing and storing tobacco, and thus of increasing profits through market exchange through structural power in the market, are not necessarily sufficient to sustain historical levels of profit due to the rising costs of producing tobacco. Yet Sun farmer-curers are not nearly as despondent as Jaffna traders. Whilst they too speak of ensuring that subsequent generations leave agriculture behind, there was clear evidence of reinvestments, and of a burgeoning and changing market of traders further up the value chain. This lack of despondency was driven in part by the increased structural power of farmer-curers in being able to control profit margins to an extent due to their bargaining power. It was also arguably shaped by the fact that the central form of energy required to cure tobacco crops was cheap to appropriate and also limitless – sunlight. Sun farmer-curers thus retained control over the rates at which they chose to sell tobacco, allowing them to mitigate the rising costs of production and curing to some extent, and they enjoyed access to a renewable energy source in order to do so. Whilst the market as a whole may be tending towards a lowering of quality and therefore price for Sun-cured tobacco, it is as of yet unclear whether this will necessarily be the case. In the short term, Sun farmer-curers, whilst certainly reflecting broader trends of wanting to leave agriculture behind, also displayed notably less despondency vis-à-vis Jaffna traders.

The next and final chapter will insist on the relevance of these findings for theory, and specifically for our understanding of the role of ecology in processes of production and accumulation. It will highlight the contributions of this thesis to critical agrarian studies, and will also indicate fruitful areas for further research.

Conclusion

In this thesis, I have explored the interrelatedness of social and environmental change in the production and exchange of tobacco in Kongunadu over a period of two centuries. This final chapter now summarises the approach and findings of the thesis, before moving on to suggested areas of future research in order to develop the initial insights established here.

This thesis started with the premise that the critical agrarian studies literature, which documents the complex and uneven process of agrarian change occurring across India (Lerche, Shah, and Harriss-White 2013), and the world more broadly (Bernstein and Byres 2001), could better foreground issues of environmental change and how they both affect and are shaped by the social dimensions of such change. Whilst food sovereignty literature has put forward a reading of agrarian capitalism through a lens that is attendant to ecology (van der Ploeg 2008), it has done so through valorising and reifying frugal peasant production (Bernstein 2013), and demonizing the ways in which agrarian development, in particular the development of 'modern' productive forces, has refashioned nature (Agrawal and Sivaramakrishnan 2000; Ludden 2000). It has thus been argued that there is the need to develop a Marxian-inspired agrarian change literature which is able to set out a coherent alternative to food sovereignty literature in its widespread promotion of small-scale agriculture and land-based livelihoods, whilst also being equipped to offer a critique of the environmentally-degrading nature of advanced capitalist agriculture and the impacts of continually-developing productive forces. In seeking to embrace this agenda, this thesis has attempted to develop a socio-ecological lens to explore agrarian change, while remaining committed to the main concerns of critical agrarian studies analysis, rooted in an exploration of differentiating class relations in India.

In order to develop a socio-ecological agrarian change lens, I have deployed insights from 'green' Marxists. Firstly I have drawn on Burkett (1996, 1999) to materially place ecology in the commodity production process in terms of where and how the wealth of nature is appropriated through labour. I have drawn from the work of Moore (2015) to think more broadly about how capital seeks to refashion nature to extract its wealth, and how processes required to appropriate natural resources affect systems of commodity production, and the environment is concurrently reshaped, or rather depleted, by such processes. I have also drawn on insights from Baglioni and Campling (2017) to explore how processes of controlling nature are articulated with the control of labour, and how the two shape one another. Finally, I have explored the work of Foster (2000) and his excavation of Marx's insights on the metabolic rift of capitalism to understand how micro-level processes engender broader ecological shifts and geographies of capitalist accumulation. In

linking these concerns to those of critical agrarian studies, I have developed a lens that broadly asks how processes of agrarian change can be understood as having been affected by the processes required to appropriate particular forms of natural wealth, and how this in turn reshapes the environment. In relation to the case at hand, my research question asks: 'How is ecology implicated in the production and exchange of tobacco?'

To address this question, I first explore agrarian change in the Indian context, and then in the context of Tamil Nadu, with a focus throughout on literature which pays heed to environmental change as well as agrarian change. Thus after the presentation and discussion of the general socio-ecological theoretical framework in Chapter 2, the rest of the chapter explores the unevenness of development across India and then Tamil Nadu through this lens.

Agrarian change across the country has proceeded such that industrialisation has largely become decoupled from agrarian surplus, and in many regions a characteristically jobless form of growth has proceeded. Agriculture thus offers a mixed picture of accumulation, stagnation, and pauperisation (Lerche 2013, 2015; Harriss-White 2014). In Tamil Nadu, the state's particularly rapid industrialisation is highlighted, as well as the uneven impacts upon marginalised communities that are incorporated into newer markets in complex and contradictory ways (Carswell and De Neve 2013a; Guérin 2013; Heyer 2016b; Donegan 2018). Caste and gender are shown to be both waning and resilient, and refashioned in new complex ways that create conjugated forms of oppression (Shah et al. 2017). Across this picture, environmental change is shown to be a factor in a handful of studies which offer the basis for my own exploration, emphasising as they do how the differential requirements of appropriating nature in different regions affects varied class relations, forms of accumulation, and systems of environmental depletion and decline (Epstein 1973; Athreya, Djurfeldt, and Lindberg 1990; Agrawal and Sivaramakrishnan 2000; Münster 2016).

Chapter 3 outlines my experiences in the field, highlighting the shift in my thesis topic and the impacts of this initially. In many ways, my field experience is what has pushed ecology to the forefront of this thesis. Whilst this has cost me, in terms of time and effort, I stand by my choice, as it would have not been possible to talk about tobacco production in Kongunadu without developing – and operationalising – a framework which foregrounds ecology as a constitutive element of agrarian change. Discussions on research methods have also touched upon fieldwork strategies and choices, and have insisted on issues of positionality and power in the field. These themes are too often bypassed and taken for granted, as if the same reality or experience could be lived by different researching subjects. Indeed, in my case, my field experience was shaped by my

own provenance, by my caste, class and gender, presenting me with significant challenges as well as equipping me with key tools of analysis.

Chapter 4 provides a historical overview of agrarian change in Kongunadu. In doing so, it highlights how small-scale commercial agriculture came to the region prior to British rule, and in fact waned for a period at the start of the British colonial period, before returning at the start of the 20th century (Baker 1984a). It further highlights the particular environmental conditions of farming in Kongunadu, foregrounding the need for high levels of labour and water to undertake farming. The nature of agriculture in this tract has thus always required capital investments in technologies required to appropriate groundwater. The chapter also offers an overview of how Kongunadu began to shift to industry at the start of the 20th century, linked to the introduction of cotton into the region, and how this enabled initially dominant Naidus and later Gounders to move into industrial units (Chari 2004; Mahadevan and Vijayabaskar 2014). This period is also shown to comprise signs of environmental decline, as commercial farming depleted nature through the use of fertilisers and multi-cropping (Baker 1984a). Within this broader picture, tobacco is shown to be suited to the type of agriculture of the region, as a short duration crop that offers high returns at market (Buchanan 1807; Baker 1984a).

Chapter 5 illustrates changes from the mid-20th century to the current era, highlighting how state-sponsored agro-technologies intensified the process of appropriation from nature by farmers, and looks to the current era to examine the complex and uneven process of agrarian change and within this, partial livelihood-related deagrarianisation, that is underway. Crucially, tobacco is shown to be emblematic of the Green Revolution-era agricultural development, as state funding drove research and development of new seed varieties and agricultural assistance for farmers cultivating it (CTRI, Vedasandur 2014; CTRI 2016). With reference to the current era, the chapter maps the uneven process of agrarian change underway, with fewer people engaged in farming, agrarian income waning as a proportion of overall income in farm households, along with productivity rises in agriculture across the state. Moreover, the chapter also examines at a broader level shifts in the cost and procurement of labour and access to water, and also the loosening of non-farm opportunities for more disadvantaged caste communities, as the main drivers of change that are making agriculture more difficult.

The subsequent three fieldwork chapters move to the specific case of tobacco in Kongunadu today. Taken together, the chapters highlight how tobacco producers are largely looking to leave agriculture behind. The analysis of their own motives and strategies highlights increased difficulties of farming, the allure of non-farm work and life, and shifting caste-based aspirations. In looking

to the political economy and ecology of this, I suggest that the changing dynamics of exploiting labour and appropriating nature are part of the reason behind this set of attitudes. The increased wages required for labour, along with shifts in labour's bargaining power, render labour required to appropriate nature more expensive and more difficult to procure for farmers. In addition, shifting gender and caste-based forms of discrimination are also likely to weaken exploitation (and appropriation of women's work) along these lines. At the same time, the declining water table across Kongunadu renders investments in technologies required to appropriate water increasingly risky. Yet the role of the state in developing and subsidising technologies designed to mitigate these risks is also remarked upon, highlighting how change is by no means linear.

Looking downstream to exchange, the different markets for Jaffna and Sun tobacco offer a means through which to understand how appropriating different forms of natural energy can shape diverse patterns of change. Specifically, whilst in the Jaffna market, curing requires expensive equipment and larger labour forces to appropriate the energy of burning coconut husks, the curing of Sun tobacco is conversely cheaper. As such, whilst the two are certainly operational at vastly different scales, the comparison highlights the importance of exploring how nature is appropriated in a given commodity production process, to better elucidate how patterns of labour, investments in technologies, and even long-term changes to nature, are impacted. In the case under scrutiny here, Sun farmer-curers have increased their bargaining power vis-à-vis traders by curing crops into non-perishable cured tobacco, whilst Jaffna traders are more despondent given the rapidly rising costs of curing. Finally, alongside dynamics that are internal to tobacco markets, I also explore external shifts in the regulation and consumption of tobacco to highlight how these may affect shifts in the market as well.

Overall, the thesis offers a set of introductory insights into the socio-ecological aspects of commodity production. I suggest firstly that different forms of agricultural production in Kongunadu, both prior to and during the early decades of colonial government, have relied on repeated investments as a means of appropriating nature, therefore disrupting the notion of a sudden rupture between 'peasant' and 'modern' production with regards to the environment, whilst also highlighting the increased rate of appropriation of water over time. In looking to tobacco within this picture, I highlight how the crop requires the appropriation of nature at various stages throughout its production, and that this process of appropriation is reshaped by shifts in agro-technologies (kavalai, pumpset, drip irrigation), and state sponsorship of these. Crucially, labour and the dynamics of procuring and paying for it are shown to be central at times to the success of appropriating nature, but not always, as the appropriation of groundwater in the current era for example is subject to the vagaries of the falling water table and not only labour. As such,

the articulation between labour and nature is complex and varied, and the appropriation of nature needs to be understood as a process subject to more complex dynamics than labour relations alone. In exploring the decline in tobacco in Kongunadu, I suggest that it is primarily both tightening rural labour markets and the increased vagaries of irrigation that render tobacco farming more 'difficult'. Yet in exploring Sun and Jaffna markets, I also suggest that different forms of natural wealth give rise to different types of 'appropriation', or different patterns of labour and technology used to draw on nature's wealth. These are less or more capital-intensive, in this case based on the fact that the Sun continues to produce natural energy that is then continually appropriated through labour. The central point here is that types of production are constituted by, and constitutive of, the forms of nature that they appropriate. Thus to put it simply, in studying commodity production, we need to pay more heed to how this process uses natural wealth, the form of natural wealth it uses, how this form shapes the type of usage, and how type of usage shapes the form of natural wealth in turn.

In taking these insights forward, I would suggest five ways in which this thesis speaks to broader issues in critical agrarian studies debates, both theoretical and empirical, and how these can be developed in future research. Firstly, in examining the trajectory of social and environmental relations in tobacco markets over a long period, the thesis documents how whilst social relations become less unequal to some extent, the depletion of nature is concurrently worsened. Therefore, accounts that look to highlight how the increasing penetration and development of capitalism in urban and rural areas can lead to better conditions for the working poor (see for example Oya and Pontara 2015) may do well to better incorporate shifts to the environment as a result of such changes. That is not to say that in the case of tobacco in Kongunadu, the documented improvements to workers' lives is only or even largely due to the encroachment of capitalism. Instead, wider literature and my own findings point to the centrality of state welfare and affirmative action policies, much of this being the result of hard-fought battles by Dalit mobilisations over the past century (Djurfeldt et al. 2008; Carswell 2013; Vijayabaskar and Wyatt 2013; Heyer 2016b). Yet undoubtedly, the development of industrial capital and the concurrent opportunities created for rural labour are also important in having driven social betterment among the rural poor in Kongunadu, though such improvements are geographically uneven (Carswell and De Neve 2013c) Analysis in this thesis reminds us however that such improvements, along with the intensification in agricultural production, are also shown to have driven the degradation of the availability and quality of surface and groundwater in the region (see Chapter 5). Earlier impacts on soil quality are also evident (see Chapter 4). These environmental dimensions thus need to be more centrally

incorporated into studies which call for a deepening of the penetration of capitalism in the Global South.

Secondly, this research highlights the need for a specific focus on how shifting patterns of the appropriation of nature and exploitation of labour have shaped accumulation across rural India. In developing the analysis put forward by Lerche (2015), a fruitful area of future research would look to systematically investigate the shifting regimes of appropriating nature across India, with regards to how environmental change, state-sponsored or private technology, and shifts in labour relations have all altered forms of appropriation, and how this is impacting accumulation by farmers. This would allow us to better grasp how the environment is implicated in accumulation, and to thus better understand the relationship between other factors affecting accumulation, and the appropriation of the environment.

Thirdly, looking more closely to one aspect of accumulation, the focus on different types of state-sponsored technology vis-à-vis the appropriation of nature in this thesis has highlighted that there are those which lead to a more intensive regime of appropriation (electric pumpsets), and those that reduce the appropriation of nature vis-à-vis production (drip irrigation). Thus further research in critical agrarian studies on the impacts of technologies that look to reduce the appropriation of nature offers scope for advocacy around state support for such measures (for example Münster 2016). However the environmental impacts of new technologies or systems of production must not be privileged over the social (see for example Gathorne-Hardy et al. 2016), rather this thesis highlights that there is scope for technologies that can mitigate the impacts of environmental depletion, thus suggesting that agro-technologies are not necessarily environmentally-degrading.

Fourthly, the specific ways in which forms of marginalisation along gendered lines have altered also warrants further investigation. As highlighted through indicative findings in this thesis (see Chapters 7 and 8), there are complex and often contradictory ways in which women's mobility and social advancement is both strengthened and weakened, and this is by no means linear. Further research into how such shifts impact labour in the farming household, in articulation with the shifting labour requirements arising from changes in the appropriation of nature, would also be a fruitful direction for further research. This builds upon a history of feminist thought on women and the environment (see Mies 1986), and also a literature in India on the shifting patterns of women's unpaid work across the country, and the impacts of this upon social reproduction in the household (Mazumder and Neetha 2011; Neetha 2013; Mezzadri 2017).

Fifth, as a further note on theory, this thesis reiterates a fairly simple but important argument set out by Farmer (1979) and later strengthened by Agrawal and Sivaramakrishnan (2000), about the

centrality of the environment in understanding how particular systems of commodity production are fashioned. This leads to a point that is central to much geographical thinking, namely that space is constitutive of capitalism (Lefebvre 1991). This thesis highlights how the particular conditions of Kongunadu led to particular requirements for appropriating nature to undertake production – namely groundwater extraction, requiring investments in draught power and expenditure on labour – that were materially different to the rest of the state, where tank storage and surface water use were historically-prevalent (Baker 1984a). Thus in seeking to deconstruct essentialist notions of a 'hardworking' caste community, or of the nature of production in this region being due to their propensity for investments alone, the material requirements of appropriation nature in a particular space must be incorporated into analysis.

Sixth, finally, and on a broader scale, the development of a political agenda aimed at highlighting the great diversity of social reproduction trajectories of distinct classes of labour in the countryside today (Bernstein 2006b) must necessarily acknowledge the ways in which environmental change is affecting processes of livelihood-related deagrarianisation, and the ways in which capitalist production, both agrarian and industrial, is reshaping the environment to forge climatic and environmental change. As hopefully exemplified in this thesis, in remaining attendant to the ways in which production draws on the wealth of nature through the hands of labour, critical agrarian studies can solidly foreground environmental issues in studying agrarian change.

This thesis thus offers a point of departure for further research. Notwithstanding its limitations, I hope here to have set out some initial scope for paths ahead, both in explaining social change in Tamil Nadu and India, and also on a world scale.

Appendix I

Interview guide for farmers

AREA OF ENQUIRY	QUESTIONS
Personal details/ social	What is your name?
	How many members in your household? What do they all do?
	What community are you from?
	Do your children farm/ will they farm? Do you want them to?
	How long have you been farming in your family?
	When did you build your house?
Tobacco	How long have you been cultivating tobacco?
	Why do you grow tobacco?
	How do you get your seeds/ seedlings?
	What do you do apart from growing tobacco? ▪ Sell seedlings? ▪ Process your own crop? ▪ Process other people's tobacco? ▪ Act as a trader/ broker?
Land	What is the size of your landholding?
	Do you own/ lease your land? What are the financial arranagements for this?
	How did you acquire your land? Have you bought/ sold land in your lifetime?
	How much of it is under tobacco cultivation? Last year/ this year?
	What other crops do you cultivate? When and on how much land each?
Machinery	Do you use machinery for cultivating/ harvesting tobacco? When and for how long?
	Do you own/ lease your machinery?
	If lease: how much do you pay per acre/ per hour?
Planting process	How do you plant tobacco? ▪ Germination? ▪ From seedlings?
	How do you do de-weeding?
	How do you do topping?
Chemical inputs	What pesticides do you use for tobacco? ▪ How much of each per acre? ▪ How often?
	What do they cost?
	Do you use more/ less chemicals for tobacco than for other crops? In terms of money spent/ amount used?
Water	How do you get water? ▪ How many wells do you have? How deep, and do they have water? ▪ How many bores do you have? How deep, and do they have water? ▪ Have you dug new bores/ deepened bores in the last 5 years? At what cost? ▪ River/ dam/ canal water? ▪ Purchased water?
	How did you acquire water over the last few years during the drought?
	How did the drought affect your decision to grow tobacco? Why?
	How and how often do you water your tobacco plants?

	How does tobacco differ from your other crops in terms of watering?
Processing	Do you undertake any processing of your own tobacco? What type of processing?
	How long have you had the infrastructure to do so? ▪ How much did it cost to build? ▪ Do you have to regularly update it/ purchase supplies for curing? How much does this cost?
	Do you purchase tobacco from other thottams each year to process? How much each year?
	What capacity of tobacco can you process at a given time? ▪ How much tobacco do you process each year? (last year and in a good year) ▪ When do you undertake processing? ▪ How much can you store at any given time?
Labour	Do you and your family work on your own thottam?
	Do you hire labourers for cultivation? ▪ How many days of labour are there during the cultivation period? ▪ How many labourers do you hire each time? ▪ When do you hire men/ when women? Why?
	Do you hire labourers for processing? ▪ How many days of labour are there during the processing period? ▪ How much labour is needed to store tobacco? (to turn the leaves) ▪ Are these the same labourers as for cultivation? If not, why? ▪ When do you hire men/ when women? Why?
	How do you procure and pay for labour? ▪ Day rates to known labourers? What is the day rate for labourers for cultivation and processing? (men and women separately). ▪ Through contractor by task? How much do you pay for each task? (topping/ weeding/ harvesting…).
	What community are your labourers from?
	Where do the labourers live? Has this changed in the last 20 years? Explain.
	Do you see any visible improvement in their circumstances? How so?
	Do you have any trouble in finding/ paying labourers?
	Are the labourers in this area unionised? Through what party?
Accumulation	How much money do you make from all you thottam-related activities? (last year and in a good year) Please expand.
	How much do you make from tobacco-related activities (last year and in a good year): ▪ Growing and selling green tobacco? ▪ Growing and selling seedlings? ▪ Growing and selling your own processed tobacco? ▪ Selling tobacco which you purchased green and subsequently cured? ▪ Borkering/ trading?
	How much do you make from non-farm activities?
	How does your profit from tobacco compare to that of other crops? Explain.
	What have your primarily spent money on in the last 5-10 years?
Money	Do you borrow money? If so, for what? ▪ Who do you borrow from? ▪ How much do you borrow? ▪ At what rate of interest? ▪ How long do you take to pay it back?

	Do you use any state credit facilities? If not why?
	Are there any specific subsidies for tobacco?
	Are there subsidies for other things that you are able to use for tobacco cultivation? (drip irrigation, building a godown…)
Trade	Who do you sell your tobacco to? ▪ Where do they come from? ▪ When do they buy it? ▪ Who do they sell on to? (retailer/ further processing…) ▪ How much do they buy? ▪ How do you decide on a price? ▪ How do you know them?
	Have these trading arrangements changed at all in the last 10-20 years?
Ban	What do you think about the ban? ▪ Have you felt any impacts from it? ▪ Do you think it is fair? What would you do instead? ▪ Do you or your family members use tobacco?
	What will you do if the government bans tobacco entirely?
Political participation	Are you or any members of your family within political positons? ▪ If so, what? ▪ How do you feel this has impacted you agricultural work? ▪ Have you used this position to talk about tobacco policies at all?
	Are you part of any associations or unions? ▪ What do you do through this union? ▪ Have you fought for anything in relation to tobacco? ▪ Is your association party political? ▪ Do you think your tobacco cultivation has any impact on your union activities?
	How do you feel local government/ state politics are involved in banning tobacco?
Socio-economic context of local area	▪ How is agriculture in the localk area changing?
	Are your children educated to a higher level than you? ▪ Why do you feel education is important? ▪ Do you educate boys/ girls to the same level? Why do you feel this is important?
	What do you look for when marrying off your daughter/ son? ▪ Agrarian/ non-agrarian family? ▪ Urban/ rural lifestyle? ▪ To increase land size in family?
	Will you/ your children still be farming in 10/ 20 years time? Discuss.
	Do you think your community plays a role in your farming? How?
Do you have any questions?	

Appendix II

Interview guide for traders

AREA OF ENQUIRY	QUESTIONS
Personal details/ social	What is your name?
	How many members in your household? What do they all do?
	What community are you from?
	Do your children farm/ trade? Do you want them to?
	How long have you been farming/ trading in your family?
	When did you build your house?
Tobacco	How long have you been cultivating tobacco?
	Why do you grow tobacco?
	How do you get your seeds/ seedlings?
	What do you do apart from growing tobacco? ▪ Sell seedlings? ▪ Process your own crop? ▪ Process other people's tobacco? ▪ Act as a trader/ broker?
Land	What is the size of your landholding?
	Do you own/ lease your land? What are the financial arrangements for this?
	How did you acquire your land? Have you bought/ sold land in your lifetime?
	How much of it is under tobacco cultivation? Last year/ this year?
	What other crops do you cultivate? When and on how much land each?
Water	How do you get water? ▪ How many wells do you have? How deep, and do they have water? ▪ How many bores do you have? How deep, and do they have water? ▪ Have you dug new bores/ deepened bores in the last 5 years? At what cost? ▪ River/ dam/ canal water? ▪ Purchased water?
	How did you acquire water over the last few years during the drought?
	How did the drought affect your decision to grow tobacco? Why?
	How and how often do you water your tobacco plants?
	How does tobacco differ from your other crops in terms of watering?
Processing	Do you undertake any processing of your own tobacco? What type of processing?
	How long have you had the infrastructure to do so? ▪ How much did it cost to build? ▪ Do you have to regularly update it/ purchase supplies for curing? How much does this cost?
	Do you purchase tobacco from other thottams each year to process? How much each year?
	What capacity of tobacco can you process at a given time? ▪ How much tobacco do you process each year? (last year and in a good year) ▪ When do you undertake processing? ▪ How much can you store at any given time?
	Who do you buy from? In what state is the leaf?
	How much did your purchased leaf cost last year?

	How much profit did you make from processing last year?
Labour	Do you and your family work on your own thottam?
	Do you hire labourers for cultivation? ▪ How many days of labour are there during the cultivation period? ▪ How many labourers do you hire each time? ▪ When do you hire men/ when women? Why?
	Do you hire labourers for processing/ storing? ▪ How many days of labour are there during the processing period? ▪ How much labour is needed to store tobacco? (to turn the leaves) ▪ Are these the same labourers as for cultivation? If not, why? ▪ When do you hire men/ when women? Why?
	How do you procure and pay for labour? ▪ Day rates to known labourers? What is the day rate for labourers for cultivation and processing? (men and women separately). ▪ Through contractor by task? How much do you pay for each task? (topping/ weeding/ harvesting…).
	What community are your labourers from?
	Where do the labourers live? Has this changed in the last 20 years? Explain.
	Do you see any visible improvement in their circumstances? How so?
	Do you have any trouble in finding/ paying labourers?
	Are the labourers in this area unionised? Through what party?
Accumulation	How much money do you make from all you thottam-related activities? (last year and this year) Please expand.
	How much do you make from tobacco-related activities (last year and this year): ▪ Growing and selling green tobacco? ▪ Growing and selling seedlings? ▪ Growing and selling your own processed tobacco? ▪ Selling tobacco which you purchased green and subsequently cured? ▪ Brokering/ trading?
	How much do you make from non-farm activities?
	How does your profit from tobacco compare to that of other crops? Explain.
	What have your primarily spent money on in the last 5-10 years?
Trade	When and why did you start trading? Where did you get your start-up capital?
	What capacity do you store?
	What are the costs involved in trading?
	Who do you buy tobacco from and in what state? ▪ Green? (With little or no processing?) ▪ Farmers' thottams? ▪ Via commission agents? ▪ Do you undertake harvesting? ▪ Do you own transport capacity?
	Who do you sell your tobacco to? ▪ Where do they come from? ▪ When do they buy it? ▪ Who do they sell on to? (retailer/ further processing…) ▪ How much do they buy? ▪ How do you decide on a price? ▪ How do you know them?

	How has the tobacco economy in the local area changed over the last 30 years or so?
	Have you tried to access new markets/ traders for your tobacco? Please explain.
	Why do you trade the type of tobacco that you do?
	Do you pay any taxes? Please explain.
Money	Do you borrow money? If so, for what? ▪ Who do you borrow from? ▪ How much do you borrow? ▪ At what rate of interest? ▪ How long do you take to pay it back?
	Do you use any state credit facilities? If not why?
	Are there any specific subsidies for tobacco?
	Are there subsidies for other things that you are able to use for tobacco cultivation? (drip irrigation, building a Godown…
Ban	What do you think about the ban? ▪ Have you felt any impacts from it? (Any changes to consumer habits/ supply chain/ taxation…) ▪ Do you think it is fair? What would you do instead? ▪ Do you or your family members use tobacco?
	How do you think the state/ central government are implementing the ban?
	What will you do if the government bans tobacco entirely?
Political participation	Are you or any members of your family within political positons? ▪ If so, what? ▪ How do you feel this has impacted you agricultural work? ▪ Have you used this position to talk about tobacco policies at all?
	Are you part of any associations or unions? ▪ What do you do through this union? ▪ Have you fought for anything in relation to tobacco? ▪ Is your association party political? ▪ Do you think your tobacco cultivation has any impact on your union activities?
Socio-economic context of local area	▪ How is agriculture in the local area changing?
	Are your children educated to a higher level than you? ▪ Why do you feel education is important? ▪ Do you educate boys/ girls to the same level? Why do you feel this is important?
	What do you look for when marrying off your daughter/ son? ▪ Agrarian/ non-agrarian family? ▪ Urban/ rural lifestyle? ▪ To increase land size in family?
	Will you/ your children still be farming in 10/ 20 years' time? Discuss.
	Do you think your community plays a role in your farming? How?
Do you have any questions?	

Appendix III

Overview of interview subjects

Agrarian actor type	Area	Type of cured tobacco	Caste community	Land size (acres)	No. of children
Broker	North (Bhavani)	Sun	Konguvellalar Gounder	0	
Curer/ Trader	North (Sathyamangalam)	Sun	Pillai	0	2
Labourer/ Farmer/ Curer	North (Salem)	Sun	Vanniyar	1	2
Curer/ Trader	Central (Pollachi)	Sun	Konguvellalar Gounder	1	
Farmer/ Broker/ Trader	North (Salem)	Sun	Vanniyar	1.5	1
Labourer/ Farmer/ Curer	North (Salem)	Sun	Vanniyar	1.5	3
Farmer/ Curer	Central (Manikapuram)	Pit	Konguvellalar Gounder	2	2
Farmer/ Curer	North (Salem)	Sun	Vanniyar	2.5	2
Farmer	South (Oddanchatram)	Jaffna/Sun	Konguvellalar Gounder	3	1
Labourer/ Farmer	South (Dharapuram)	Jaffna/Sun	Konguvellalar Gounder	3	2
Farmer/ Curer/ Trader	North (Sathyamangalam)	Sun	Pillai	3	
Farmer/ Curer	North (Gobi)	Sun	Konguvellalar Gounder	3	2
Farmer/ Curer	Central (Manikapuram)	Pit	Konguvellalar Gounder	3	2
Farmer/ Curer	North (Bhavani)	Sun	Konguvellalar Gounder	3	2
Farmer/ Curer	North (Salem)	Sun	Vanniyar	3.5	
Farmer/ Curer	North (Bhavani)	Sun	Konguvellalar Gounder	4	2
Farmer/ Curer/ Trader	Central (Koduvai)	Jaffna	Konguvellalar Gounder	4	
Farmer	South (Oddanchatram)	Jaffna	Konguvellalar Gounder	5	2
Farmer	Central (Kangeyam)	Jaffna	Konguvellalar Gounder	5	
Farmer/ Curer	Central (Palladam)	Pit	Konguvellalar Gounder	5	
Farmer/ Curer	North (Bhavani)	Sun	Vanniyar	5	2

Farmer/ Broker	South (Oddanchatram)	Jaffna/Sun	Konguvellalar Gounder	*5*	2
Farmer/ Curer/ Trader	Central (Koduvai)	Jaffna	Konguvellalar Gounder	5	
Farmer	Central (Kangeyam)	Jaffna	Konguvellalar Gounder	5	2
Labourer/ Farmer	Central (Kangeyam)	Jaffna	Muthiraja	5	1
Curer/ Trader	Central (Koduvai)	Jaffna	Konguvellalar Gounder	5	1
Curer/ Trader	North (Bhavani)	Sun	Kullalar	5	1
Curer/ Trader	Central (Koduvai)	Jaffna	Konguvellalar Gounder	*6*	2
Farmer/ Curer	North (Bhavani)	Sun	Vanniyar	6	2
Curer/ Trader	South (Oddanchatram)	Jaffna	Konguvellalar Gounder	*6*	2
Farmer/ Curer/ Trader	Central (Koduvai)	Jaffna	Konguvellalar Gounder	6	2
Farmer/ Curer	Central (Kangeyam)	Jaffna	Konguvellalar Gounder	*7*	2
Farmer/ Curer/ Trader	North (Bhavani)	Sun	Konguvellalar Gounder	7	2
Farmer/ Curer	North (Bhavani)	Sun	Konguvellalar Gounder	8	2
Farmer/ Curer	North (Salem)	Sun	Vanniyar	8	2
Farmer/ Broker/ Trader	North (Bhavani)	Sun	Konguvellalar Gounder	9	2
Farmer/ Curer/ Trader	South (Dharapuram)	Sun	Konguvellalar Gounder	9	2
Farmer/ Broker/ Trader	North (Bhavani)	Sun	Konguvellalar Gounder	10	3
Farmer/ Curer	North (Bhavani)	Sun	Konguvellalar Gounder	10	2
Farmer/ Curer	North (Bhavani)	Sun	Konguvellalar Gounder	10	2
Farmer/ Curer	North (Bhavani)	Sun	Vanniyar	10	2
Farmer/ Curer	North (Gobi)	Sun	Konguvellalar Gounder	10	2
Farmer	South (Dharapuram)	Jaffna	Konguvellalar Gounder	15	1
Farmer/ Curer/ Trader	South (Oddanchatram)	Sun	Konguvellalar Gounder	20	2

Farmer/ Curer	North (Bhavani)	Sun	Konguvellalar Gounder	20	1
Farmer	South (Oddanchatram)	Jaffna/Sun	Konguvellalar Gounder	20	2
Curer/ Trader	Central (Koduvai)	Jaffna	Konguvellalar Gounder	20	2
Farmer/ Curer	North (Bhavani)	Sun	Konguvellalar Gounder	20	2
Curer/ Trader	North (Salem)	Sun	Vanniyar	20	5
Farmer	Central (Kangeyam)	Jaffna	Konguvellalar Gounder	20	
Farmer	Central (Kangeyam)	Jaffna	Konguvellalar Gounder	20	1
Farmer	South (Oddanchatram)	Jaffna	Konguvellalar Gounder	22	
Farmer/ Curer	North (Salem)	Sun	Konguvellalar Gounder	25	
Landowner	North (Olagardam)	Sun	Kullalar	26	
Farmer/ Curer	North (Bhavani)	Sun	Konguvellalar Gounder	30	2
Curer/ Trader	Central (Koduvai)	Jaffna	Konguvellalar Gounder	40	2
Farmer/ Curer/ Trader	North (Salem)	Sun	Konguvellalar Gounder	60	2
Trader	North (Sathyamangalam)	Sun	Pillai		2
Farmer	Central (Dharapuram)	Jaffna	Konguvellalar Gounder	2	1
Farmer/ Curer/ Trader	Central (Koduvai)	Jaffna	Konguvellalar Gounder		2
Curer/ Trader	North (Bhavani)	Sun	Konguvellalar Gounder		
Curer/ Trader	Central (Koduvai)	Jaffna	Konguvellalar Gounder	5	1
Farmer/ Curer	North (Gobi)	Sun	Konguvellalar Gounder	4	2
Farmer/ Curer	North (Bhavani)	Sun	Reddiyar	10	3
Curer/ Trader	North (Bhavani)	Sun	Vanniyar	12	3
Farmer/ Curer/ Trader	Central (Dharapuram)	Sun	Konguvellalar Gounder	8	
Farmer/ Curer/ Trader	Central (Dharapuram)	Sun	Konguvellalar Gounder	4	
Curer/ Trader	Central (Koduvai)	Jaffna/Sun	Konguvellalar Gounder		2

N types
'Labourer/Farmer' = 2
'Labourer/Farmer/Curer' = 2
'Farmer' = 10
'Farmer/Curer' = 23
'Farmer/Curer/Trader' = 11
'Broker' = 1
'Farmer/Broker' = 1
'Farmer/Broker/Trader' = 3
'Curer/Trader' = 13
'Trader' = 1
'Landowner' = 1

References

Abraham, Vinoj. 2013. "Missing Labour or Consistent 'De-Feminisation'?" *Economic and Political Weekly* 48 (31): 99–108.

Achalli, Sonika, Shishir Ram Shetty, and Subhas G Babu. 2012. "The Green Hazards: A Meta-Analysis of Green Tobacco Sickness." *International Journal of Occupational Safety and Health* 2 (1).

Agrawal, Arun, and K. Sivaramakrishnan. 2000. "Introduction: Agrarian Environments." In *Agrarian Environments: Resources, Representation and Rule in India*, edited by Arun Agrawal and K. Sivaramakrishnan, 1–22. Durham and London: Duke University Press.

Altieri, Miguel A., and Victor Manuel Toledo. 2011. "The Agroecological Revolution in Latin America: Rescuing Nature, Ensuring Food Sovereignty and Empowering Peasants." *The Journal of Peasant Studies* 38 (3): 587–612. https://doi.org/10.1080/03066150.2011.582947.

Ananth, V. Krishna. 2014. "Fragmented Politics in Tamil Nadu." *Economic and Political Weekly* 49 (15): 1232–33.

Aradhna Aggarwal. 2006. "Special Economic Zones: Revisiting the Policy Debate." *Economic and Political Weekly* 41 (43/44): 4533–36.

Araghi, F. 2009. Accumulation by Displacement: Global Enclosures, Food Crisis, and the Ecological Contradictions of Capitalism. *Review (Fernand Braudel Center)*, 32(1), 113–46.

Ariza-Montobbio, Pere, Sharachchandra Lele, Giorgos Kallis, and Joan Martinez-Alier. 2010. "The Political Ecology of Jatropha Plantations for Biodiesel in Tamil Nadu, India." *The Journal of Peasant Studies* 37 (4): 875–97. https://doi.org/10.1080/03066150.2010.512462.

Arrighi, Giovanni, and Jason Moore. 2001. "Capitalist Development in World Historical Perspective." In *Phases of Capitalist Development*, edited by R. Albritton, M. Itoh, R. Westra, and A. Zuege, 56–75. London: Palgrave Macmillan.

Athreya, Venkatesh B., Göran Djurfeldt, and Staffan Lindberg. 1990. *Barriers Broken: Production Relations and Agrarian Change in Tamil Nadu*. New Delhi: Sage.

Ayyappan, V. 2013. "Tamil Nadu Bans Gutka and Pan Masala with Immediate Effect." *The Times of India*, May 29, 2013. http://timesofindia.indiatimes.com/city/chennai/Tamil-Nadu-bans-gutka-and-pan-masala-with-immediate-effect/articleshow/20337486.cms.

Ayyar, S. N. Chandrasekara. 1939. "The Major Cultivated Crops of the Coimbatore District." *The Journal of the Madras Geographical Association* XIV: 117–26.

Baglia, Dr. B. S., ed. 1966. *Madras District Gazetteers: Coimbatore*. Madras: Government of Madras.

Baglioni, Elena, and Liam Campling. 2017. "Natural Resource Industries as Global Value Chains: Frontiers, Fetishism, Labour and the State." *Environment and Planning A: Economy and Space* 49 (11): 2437–56. https://doi.org/10.1177/0308518X17728517.

Bair, Jennifer. 2009. "Global Commodity Chains: Genealogy and Review." In *Frontiers of Commodity Chain Research*, edited by Jennifer Bair, 1–34. Stanford, California: Stanford University Press.

Baker, Christopher. 1984a. *An Indian Rural Economy 1880-1955: The Tamilnadu Countryside*. Delhi: Oxford University Press.

———. 1984b. *The Politics of South India: 1920 – 1937*. Cambridge: Cambridge University Press.

Bakker, I. 2007. Social Reproduction and the Constitution of a Gendered Political Economy. *New Political Economy*, 12(4), 541–56.

Bal, Prasanta Kumar, A. Ramachandran, R. Geetha, B. Bhaskaran, P. Thirumurugan, J. Indumathi, and N. Jayanthi. 2016. "Climate Change Projections for Tamil Nadu, India: Deriving High-Resolution Climate Data by a Downscaling Approach Using PRECIS." *Theoretical and Applied Climatology* 123 (3): 523–35. https://doi.org/10.1007/s00704-014-1367-9.

Banaji, Jairus. 2003. "The Fictions of Free Labour: Contract, Coercion, and So-Called Unfree Labour." *Historical Materialism* 11 (3): 69–95. https://doi.org/10.1163/156920603770678319.

———. 2010. *Theory as History: Essays on Modes of Production and Exploitation*. Leiden: Brill.

———. 2016. "Merchant Capitalism, Peasant Households and Industrial Accumulation: Integration of a Model." *Journal of Agrarian Change* 16 (3): 410–431. https://doi.org/10.1111/joac.12175.

Bardhan, Pranab K. 1980. "Interlocking Factor Markets and Agrarian Development: A Review of Issues." *Oxford Economic Papers* 32 (1): 82–98.

Barnes, Tom, Krishna Shekhar Lal Das, and Surendra Pratap. 2015. "Labour Contractors and Global Production Networks: The Case of India's Auto Supply Chain." *The Journal of Development Studies* 51 (4): 355–69. https://doi.org/10.1080/00220388.2014.983908.

Beck, Brenda E. F. 1972. *Peasant Society in Konku: A Study of Right and Left Subcastes in South India*. Vancouver: University of British Columbia Press.

Bennett, J. W. 1843. *Ceylon and Its Capabilities; An Account of Its Natural Resources, Indigenous Productions, and Commercial Faculties; to Which Are Added Details of Its Statistics, Pilotage and Sailing Directions, and An Appendix*. London: W H Allen and Co.

Bernstein, Henry. 1996. "Agrarian Questions Then and Now." *Journal of Peasant Studies* 24 (1–2): 22–59.

———. 2006a. "Is There an Agrarian Question in the 21st Century?" *Canadian Journal of Development Studies* 27 (4): 449–60.

———. 2006b. "Once Were/Still Are Peasants? Farming in a Globalising 'South.'" *New Political Economy* 11 (3): 399–406. https://doi.org/10.1080/13563460600841033.

———. 2010a. *Class Dynamics of Agrarian Change: Agrarian Change and Peasant Studies*. Halifax and Winnipeg: Fernwood.

———. 2010b. "Introduction: Some Questions Concerning the Productive Forces." *Journal of Agrarian Change* 10 (3): 300–314. https://doi.org/10.1111/j.1471-0366.2010.00272.x.

———. 2013. "Food Sovereignty: A Sceptical View." *ICAS Review Paper*, 4, .

———. 2014. "Food Sovereignty via the 'Peasant Way': A Sceptical View." *The Journal of Peasant Studies* 41 (6): 1031–63. https://doi.org/10.1080/03066150.2013.852082.

Bernstein, Henry, and Terence J. Byres. 2001. "From Peasant Studies to Agrarian Change." *Journal of Agrarian Change* 1 (1): 1–56. https://doi.org/10.1111/1471-0366.00002.

Bernstein, Henry, Harriet Friedmann, Jan Douwe van der van der Ploeg, Teodor Shanin, and Ben White. 2018. "Forum: Fifty Years of Debate on Peasantries, 1966–2016." *The Journal of Peasant Studies* 45 (4): 689–714. https://doi.org/10.1080/03066150.2018.1439932.

Bettcher, Douglas, and Ira Shapiro. 2001. "Tobacco Control in an Era of Trade Liberalisation." *Tobacco Control* 2001 (10): 65–67.

Bhaduri, Amit. 1973. "A Study in Agricultural Backwardness Under Semi-Feudalism." *The Economic Journal* 83 (329): 120–37. https://doi.org/10.2307/2231104.

———. 1986. "Forced Commerce and Agrarian Growth." *World Development* 14 (2): 267–72. https://doi.org/10.1016/0305-750X(86)90058-6.

Boserup, Ester. 1989. *Women's Role in Economic Development*. London: Earthscan Publications Ltd.

Bosu, S. Santhana. 1995. "Sharing of Inter-State River Water Resources: Case Studies of Two Major Irrigation Systems in Tamil Nadu, India." *International Journal of Water Resources Development* 11 (4): 443–56. https://doi.org/10.1080/07900629550042128.

Bourgois, Philippe. 1988. "Conjugated Oppression: Class and Athnicity among Guaymi and Kuna Banana Workers." *American Ethnologist* 15 (2): 328–48.

Brass, Tom. 1995. "Introduction: The New Farmers' Movements in India." In *New Farmers' Movements in India*, edited by Tom Brass, 3–26. Ilford: Frank Cass and Co.

———. 1999. *Towards a Comparative Political Economy of Unfree Labour: Case Studies and Debates*. London: Frank Cass and Co.

———. 2003. "Why Unfree Labour Is Not 'So-Called': The Fictions of Jairus Banaji." *The Journal of Peasant Studies* 31 (1): 101–36. https://doi.org/10.1080/0306615031000169143.

Breman, Jan. 2007. *Labour Bondage in West India: From Past to Present*. New Delhi: Oxford University Press.

Breman, J. and M. van der Linden. 2014. Informalizing the Economy: The Return of the Social Question at a Global Level. *Development and Change*, 45(5), 920–40.

Brenner, R. 1978. Dobb on the transition from feudalism to capitalism. *Cambridge Journal of Economics*, 2(2), 121–40.

Brenner, Robert P. 2001. "The Low Countries in the Transition to Capitalism." *Journal of Agrarian Change* 1 (2): 169–241. https://doi.org/10.1111/1471-0366.00007.

Bryceson, Deborah Fahy. 1996. "Deagrarianization and Rural Employment in Sub-Saharan Africa: A Sectoral Perspective." *World Development* 24 (1): 97–111.

Bryman, Alan. 2012. *Social Research Methods*. 4th ed. Oxford: Oxford University Press.

Buchanan, F. 1807. *A Journey from Madras through the Countries of Mysore, Canara and Malabar*. London.

Burkett, Paul. 1996. "Value, Capital and Nature: Some Ecological Implications of Marx's Critique of Political Economy." *Science & Society* 60 (3): 332–59.

———. 1999. "Nature's 'Free Gifts" and the Ecological Significance of Value.'" *Capital & Class* 23 (2): 89–110.

———. 2014. *Marx and Nature: A Red and Green Perspective*. Chicago: Haymarket Books.

Byres, T. J. 1977. "Agrarian Transition and the Agrarian Question." *Journal of Peasant Studies* 4 (3): 258–74. https://doi.org/10.1080/03066157708438024.

Byres, Terrence J. 1996. *Capitalism from Above and Capitalism from Below: An Essay in Comparative Political Economy*. London and Basingstoke: Macmillan.

Byres, T.J. 1981. "The New Technology, Class Formation and Class Action in the Indian Countryside." *Journal of Peasant Studies* 8 (4): 405–54. https://doi.org/10.1080/03066158108438146.

Cancer Institute, Adayar. 2016. "Tamil Nadu Tobacco Survey 2015-2016." Chennai: Cancer Institute (WIA). http://cancerinstitutewia.in/CIWIA/download/CI_Fact%20Sheets_final.pdf.

Carswell, Grace. 2013. "Dalits and Local Labour Markets in Rural India: Experiences from the Tiruppur Textile Region in Tamil Nadu." *Transactions of the Institute of British Geographers* 38 (2): 325–38. https://doi.org/10.1111/j.1475-5661.2012.00530.x.

Carswell, Grace, and Geert De Neve. 2013a. "From Field to Factory: Tracing Transformations in Bonded Labour in the Tiruppur Region." *Economy and Society* 42 (3): 430–54.

———. 2013b. "Labouring for Global Markets: Conceptualising Labour Agency in Global Production Networks." *Geoforum* 44 (1): 62–70.

———. 2013c. "T-Shirts and Tumblers." *Contributions to Indian Sociology* 48 (1): 103–31. https://doi.org/10.1177/0069966713502423.

Cawthorne, Pamela. 1990. "Amoebic Capitalism as a Form of Accumulation: The Case of the Cotton Knitwear Industry in a South Indian Town." Milton Keynes: The Open University.

———. 1995. "Of Networks and Markets: The Rise and Rise of a South Indian Town, the Example of Tiruppur's Cotton Knitwear Industry." *World Development* 23 (1): 43–56.

Cederlöf, Gunnel. 1997. *Bonds Lost: Subordination, Conflict and Mobilisation in Rural South India c. 1900-1970*. New Delhi: Manohar.

Census of India. 1981. "Tamil Nadu Census Abstract." https://archive.org/details/TamilNaduCensus1981Abstract.

———. 2011. "Tamil Nadu Profile." Census of India. http://censusindia.gov.in/2011census/censusinfodashboard/stock/profiles/en/IND033_Tamil%20Nadu.pdf.

Chandrasekhar, C.P., and Jayati Ghosh. 2007. "Self-Employment as Opportunity or Challenge." New Delhi: Macroscan. http://www.macroscan.net/pdfs/self_employment.pdf.

Chari, Sharad. 2004. *Fraternal Capital*. Delhi: Permanent Black.

Chattopadhyay, B. 1969. "Marx and India's Crisis." In *Homage to Karl Marx*, edited by P. C. Joshi. New Delhi: People's Publishing House.

Chinnasamy, Pennan, and Govindasamy Agoramoorthy. 2015. "Groundwater Storage and Depletion Trends in Tamil Nadu State, India." *Water Resources Management* 29 (7): 2139–52. https://doi.org/10.1007/s11269-015-0932-z.

Coe, Neil M. 2012. "Geographies of Production II: A Global Production Network A–Z." *Progress in Human Geography* 36 (3): 389–402. https://doi.org/10.1177/0309132511402784.

Commercial Taxes and Registration Department. 2015. Interview with Commercial Taxes and Registration Department, Tamil Nadu State Government.

Conan Doyle, Arthur. 2001. *A Study in Scarlett*. London: Penguin Books.

Cox, Howard. 2000. *The Global Cigarette: Origins and Evolution of British America Tobacco 1880-1945*. Oxford: Oxford University Press.

CTRI. 2016. "About the Institute." Central Tobacco Research Institute, Rajahamundry. http://www.ctri.org.in/home_about.php.

CTRI, Vedasandur. 2014. Interview with Senior staff at Central Tobacco Research Institute, Vedasandur.

Damodaran, Harish. 2008. *India's New Capitalists: Caste, Business and Industry in a Modern Nation*. Basingstoke: Palgrave Macmillan.

DCMMSME. 2002. "Industrial Potential Survey Report: Erode 2001-2002." New Delhi: Development Commissioner Ministry of Micro-, Small and Medium Enterprises. http://dcmsme.gov.in/publications/traderep/erode/erode.htm.

De Neve, Geert. 2003. "Expectations and Rewards of Modernity: Commitment and Mobility among Rural Migrants in Tirupur, Tamil Nadu." *Contributions to Indian Sociology* 37 (1–2): 251–80. https://doi.org/10.1177/006996670303700111.

Department of Evaluation and Applied Research. 2014. "Chapter II: State Income." In *Tamil Nadu - An Economic Appraisal 2011-12 to 2013-14*. Chennai, Tamil Nadu: Tamil Nadu State Government. http://www.tn.gov.in/dear/State%20Income.pdf.

Dept of Economics and Statistics. 2015. "Tamil Nadu Agriculture." Chennai: Government of Tamil Nadu. http://www.tn.gov.in/deptst/agriculture.pdf.

———. 2018. "Tamil Nadu Consumer Price Index." Chennai: Government of Tamil Nadu.

Deshpande, Ashwini. 2011. *The Grammar of Caste: Economic Discrimination in Contemporary India*. New Delhi: Oxford University Press.

Desmarais, A-A. 2002. "PEASANTS SPEAK - The Vía Campesina: Consolidating an International Peasant and Farm Movement." *Journal of Peasant Studies* 29 (2): 91–124. https://doi.org/10.1080/714003943.

Devereux, Stephen, and John Hoddinott. 1993. "Introduction." In *Fieldwork in Developing Countries*, edited by Stephen Devereux and John Hoddinott, xi–xiii. Boulder, Colarado: Lynne Rienner Publishers.

Directorate of Census Operations, Tamil Nadu. 2011a. "District Census Handbook: Coimbatore." Chennai: Census of India 2011. http://www.censusindia.gov.in/2011census/dchb/DCHB_A/33/3331_PART_A_DCHB_COIMBATORE.pdf.

———. 2011b. "District Census Handbook: Erode." Chennai: Census of India 2011. http://www.censusindia.gov.in/2011census/dchb/DCHB_A/33/3309_PART_A_DCHB_ERODE.pdf.

———. 2011c. "District Census Handbook: Tiruppur." Chennai: Census of India 2011. http://www.censusindia.gov.in/2011census/dchb/DCHB_A/33/3332_PART_A_DCHB_TIRUPPUR.pdf.

Djurfeldt, Göran, Venkatesh Athreya, N. Jayakumar, Staffan Lindberg, A. Rajagopal, and R. Vidyasagar. 2008. "Agrarian Change and Social Mobility in Tamil Nadu." *Economic and Political Weekly* 43 (45): 50–61.

Djurfeldt, Göran, and Srilata Sircar. 2017. *Structural Transformation and Agrarian Change in India*. London: Routledge.

Donegan, Brendan. 2018. "Cuddalore, Chemical Industrial Estate, Tamil Nadu." In *Ground Down by Growth: Tribe, Caste, Class and Inequality in Twenty-First-Century India*, by Alpa Shah, Jens Lerche, Richard Axelby, Dalel Benbabaali, Brendan Donegan, Jayaseelan Raj, and Vikramaditya Thakur, 82–114. London: Pluto Press.

Dr Prakash Gupta. 2014. Interview with Dr Prakash Gupta.

Edelman, Marc, Tony Weis, Amita Baviskar, Saturnino M. Borras Jr, Eric Holt-Giménez, Deniz Kandiyoti, and Wendy Wolford. 2014. "Introduction: Critical Perspectives on Food Sovereignty." *The Journal of Peasant Studies* 41 (6): 911–31. https://doi.org/10.1080/03066150.2014.963568.

Epstein, T. Scarlett. 1973. *South India: Yesterday, Today and Tomorrow*. London and Basingstoke: Macmillan.

Eriksen, Michael, Judith Mackay, Nei Schluger, Farhad Islami Gomeshtapeh, and Jeffrey Dope. 2015. "The Tobacco Atlas." Fifth Edition. The American Cancer Society, World Lung Foundation.

Farmer, B. H., ed. 1977. *Green Revolution? Technology and Change in Rice-Growing Areas of Tamil Nadu and Sri Lanka*. Basingstoke: Palgrave Macmillan.

———. 1979. "The 'Green Revolution' in South Asian Ricefields: Environment and Production." *The Journal of Development Studies* 15 (4): 304–19. https://doi.org/10.1080/00220387908421735.

Farmers, Traders and Brokers. 2014. Interviews and Field notesTamil Nadu. South India.

FCTC. 2005. "WHO Framework Convention on Tobacco Control." Geneva: World Health Organisation. http://apps.who.int/iris/bitstream/10665/42811/1/9241591013.pdf.

———. 2015. "The WHO Framework Convention on Tobacco Control: An Overview." http://www.who.int/fctc/about/WHO_FCTC_summary_January2015.pdf?ua=1.

Federici, S. 2012. *Revolution at Point Zero: Housework, Reproduction, and Feminist Struggle*. PM Press.

Federici, Silvia. 2004. *Caliban and the Witch*. Brooklyn: Autonomedia.

Foster, John Bellamy. 2000. *Marx's Ecology: Materialism and Nature*. New York: Monthly Review Press.

———. 2014. "Paul Burkett's Marx and Nature Fifteen Years After." *Monthly Review* 66 (7). https://monthlyreview.org/2014/12/01/paul-burketts-marx-and-nature-fifteen-years-after/.

———. 2016. "In Defense of Ecological Marxism: John Bellamy Foster Responds to a Critic." Climate and Capitalism. June 6, 2016. http://climateandcapitalism.com/2016/06/06/in-defense-of-ecological-marxism-john-bellamy-foster-responds-to-a-critic/.

Foster, John Bellamy, and Paul Burkett. 2016. *Marx and the Earth: An Anti-Critique*. Boston: Brill.

FSSAI. 2011. "Food Safety and Standards (Prohibition and Restrction on Sales) Regulation, 2011." New Delhi: Food Safety and Standards Authority of India. file:///C:/Users/nn3/Downloads/Prohibition_Regulations.pdf.

Gadgil, Madhav, and Ramachandra Guha. 1992. *This Fissured Land: An Ecological History of India*. Berkeley and Los Angeles: University of California Press.

Gathorne-Hardy, Alfred, D. Narasimha Reddy, M. Venkatanarayana, and Barbara Harriss-White. 2016. "System of Rice Intensification Provides Environmental and Economic Gains but at the Expense of Social Sustainability — A Multidisciplinary Analysis in India." *Agricultural Systems* 143 (March): 159–68. https://doi.org/10.1016/j.agsy.2015.12.012.

Georgescu-Roegen, Nicholas. 1971. *The Entropy Law and the Economic Process*. Cambridge, MA: Harvard University Press.

Ghildiyal, Subodh. 2015. "Raise 'creamy Layer' to Rs 10.5 Lakh: OBC Panel." *Times of India*, May 5, 2015. http://timesofindia.indiatimes.com/india/Raise-creamy-layer-to-Rs-10-5-lakh-OBC-panel/articleshow/47155884.cms.

GOI. 2016. "Agriculture Statistics at a Glance 2016." New Delhi: Department of Agriculture, Cooperation and Farmers' Welfare.

Gokhale, B. G. 1974. "Tobacco in Seventeenth-Century India." *Agricultural History* 48 (4): 484–92.

Gorringe, Hugo. 2012a. "Caste and Politics in Tamil Nadu." India Seminar. http://www.india-seminar.com/2012/633/633_hugo_gorringe.htm.

———. 2012b. "Caste and Politics in Tamil Nadu." *The Monthly Symposium* 633.

Government of India. 2010. "Global Adult Tobacco Survey India 2009-2010." New Delhi: Ministry of Health and Family Welfare, Government of India; Centers for Disease Control and Prevention, USA; and World Health Organization.

Government of India, Ministry of Agriculture and Farmers Welfare, Department of Agriculture, Cooperation and Farmers Welfare, and Directorate of Economics and Statistics. 2015. "Agricultural Statistics at a Glance 2015." New Delhi: Government of India.

Government of Tamil Nadu. 1985. "Season and Crop Report of Tamil Nadu for the Agricultural Year 1980-1981." Madras: Department of Statistics. Government opf Tamil Nadu.

———. 2007. "Tamil Nadu State Perspective and Strategic Plan XI." Chennai: Government of Tamil Nadu.

———. 2013a. "Season and Crop Report 2012-13." Chennai: Government of Tamil Nadu.

———. 2013b. "Season and Crop Report Tamil Nadu (2011-2012)." Department of Economics and Statistics, Chennai.

———. 2014. "Tamil Nadu Season and Crop Report 2013-14." Chennai: Government of Tamil Nadu.

———. 2015. "3. Climate and Rainfall, Tamil Nadu Statistical Handbook." http://www.tn.gov.in/deptst/climateandrainfall.pdf.

Govindarajan, Vinita. 2017. "Not Everyone Gets a Monsoon: Tamil Nadu Is Still Reeling from the Worst Drought in 140 Years." *Scroll India*, June 14, 2017. https://scroll.in/article/840515/not-everyone-gets-a-monsoon-tamil-nadu-is-still-reeling-from-the-worst-drought-in-140-years.

Govt. of Tamil Nadu. 1981. "Season and Crop Report of Tamil Nadu for the Agricultural Year 1979-80." Chennai, Tamil Nadu: Department of Economics and Statistics, Chennai.

———. 2006. "The Tamil Nadu Backward Classes, Scheduled Castes and Scheduled Tribes (Reservation of Seats in Private Educational Institutions) Act, 2006." Government of Tasmil Nadu. http://tnhighereducation.in/wp-content/uploads/2013/11/The-Tamil-Nadu-Backward-Classes-Scheduled-Castes-and-Scheduled-Tribes-Reservation-of-Seats-in-Private-Edu.-Insitutions-Act-2006.pdf.

———. 2016. "Districts of Tamil Nadu." Chennai: Government of Tamil Nadu. http://www.tn.gov.in/district_view.

Guérin, Isabelle. 2013. "Bonded Labour, Agrarian Changes and Capitalism: Emerging Patterns in South India." *Journal of Agrarian Change* 13 (3): 405–423.

Guha, Sumit. 1999. *Environment and Ethnicity in India 1200-1991*. Cambridge: Cambridge University Press.

———. 2013. *Beyond Caste: Indentity and Power in South Asia, Past and Present*. Leiden: Brill.

Harriss, Barbara. 1993. "Talking to Traders about Trade." In *Agricultural Markets from Theory to Practice: Field Experience in Developing Countries*, edited by John Hoddinott and Stephen Devereux, 138–51. Boulder, Colarado: Lynne Rienner Publishers.

Harriss, John, and Barbara Harriss-White. 2007. "Green Revolution And After: The 'North Arcot Papers' And Long Term Studies Of The Political Economy Of Rural Development in South India." Oxford Department for International Development. http://www.qeh.ox.ac.uk/publications/green-revolution-and-after-north-arcot-papers-and-long-term-studies-political-economy.

Harriss, John, J Jeyaranjan, and K Nagaraj. 2010. "Land, Labour and Caste Politics in Rural Tamil Nadu in the 20th Century: Iruvelpattu (1916-2008)." *Economic and Political Weekly* 45 (31): 47–61.

Harriss-White, Barbara. 1996. *A Political Economy of Agricultural Markets in South India: Masters of the Countryside*. New Delhi: Sage.

———. 1999. "12: Power in Peasant Markets." In *Agricultural Markets from Theory to Practice: Field Experiences in Developing Countries*, edited by Barbara Harriss-White, 261–86. Basingstoke: Palgrave Macmillan.

———. 2007. *Rural Commercial Capital: Agricultural Markets in West Bengal*. New Delhi: OUP.

———. 2008. "Introduction: India's Rainfed Agricultural Dystopia." *The European Journal of Development Research* 20 (4): 549–61. https://doi.org/10.1080/09578810802493291.

———. 2013. "West Bengal's Rural Commercial Capital." *International Critical Thought* 3 (1): 20–42. https://doi.org/10.1080/21598282.2013.761442.

———. 2014. "Labour and Petty Production." *Development and Change* 95 (5): 981–1000.

———. 2017. "Constructing Regions Inside the Nation." *Economic and Political Weekly* 52 (46): 44–55.

———. 2018. "Awkward Classes and India's Development." *Review of Political Economy*, August, 1–22. https://doi.org/10.1080/09538259.2018.1478507.

Harriss-White, Barbara, and Nandini Gooptu. 2001. "Mapping India's World of Unorganized Labour." *Socialist Register* 37: 89–118.

Harriss-White, Barbara, and M. Ali Jan. 2012. "The Three Roles of Agricultural Markets: A Review of Ideas about Agricultural Commodity Markets in India." *Economic and Political Weekly*, Review of Rural Affairs, XLVII (50): 39–52.

Harriss-White, Barbara, and S. Janakarajan. 1997. "From Green Revolution to Rural Industrial Revolution in South India." *Economic and Political Weekly* 32 (25): 1469–77.

Hefler, Marita. 2015. "Kerala: India's First Tobacco Ad-Free State." *BMJ Blogs* (blog). September 14, 2015. http://blogs.bmj.com/tc/2015/09/04/kerala-indias-first-tobacco-ad-free-state/.

Heyer, Judith. 2000. "The Changing Position of Thottam Farmers in Villages in Rural Coimbatore, Tamil Nadu, between 1981/2 and 1996," Queen Elizabeth House Working Paper Series, , no. 59.

———. 2012. "Labour Standards and Social Policy: A South Indian Case Study." *Global Labour Journal* 3 (1): 91–117.

———. 2014. "Dalit Women Becoming 'Housewives': Lessons from the Tiruppur Region, 1981/2 to 2008/9." In *Dalits in Neoliberal India*, edited by Clarinda Still, 208–35. Abingdon: Routledge.

———. 2016a. "7. Loosening Ties of Patriarchy in Agrarian Transition in Tamil Nadu." In *Critical Perspectives on Agrarian Transition: India in the Global Debate*, edited by B. B. Mohanty. Abingdon: Routledge.

———. 2016b. "Rural Gounders on the Move in Western Tamil Nadu: 1981-2 to 2008-9." In *The Changing Village in India: Insights from Longitudinal Research*, edited by Himanshu, Praveen Jha, and Gerry Rogers. Oxford: Oxford University Press.

———. 2017. "The Impact of Bride Shortages in South India: Vellala Gounders in Villages in Western Tamil Nadu." In *'Scarce' Women and 'Surplus' Men in Communities of Asia: Macro Demographics versus Local Dynamics*, edited by Sharada Srinivasan and Shuzhuo Li. New Delhi: Springer.

Heyer, Judith, and Barbara Harriss-White. 2010. "Introduction." In *The Comparative Political Economy of Development: Africa and South Asia*, edited by Judith Heyer and Barbara Harriss-White, 1–17. Abingdon: Routledge.

ILO. 2017. "India Labour Market Update." New Delhi: ILO Country Office for India, International Labour Organization. https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-new_delhi/documents/publication/wcms_568701.pdf.

Iyer, Malathy. 2014. "Harsh Vardhan Seeks Alternatives for Tobacco Crops." *The Times of India*, October 15, 2014. http://timesofindia.indiatimes.com/india/Harsh-Vardhan-seeks-alternatives-for-tobacco-crops/articleshow/44825829.cms.

Jaffrelot, Christophe. 2006. "The Impact of Affirmative Action in India: More Political than Socioeconomic." *India Review* 5 (2): 173–89. https://doi.org/10.1080/14736480600824516.

Jaishankar, C. 2009. "Tree Species Turning into Environmental Threat." *The Hindu*, May 27, 2009. http://www.thehindu.com/todays-paper/tp-national/tp-tamilnadu/Tree-species-turning-into-environmental-threat/article16603887.ece.

Janakarajan, S. 2004. "Populism and Electricity in Rural Tamil Nadu." In *Rural India Facing the 21st Century: Essays on Long Term Village Change and Development Policy*, by S Janakarajan and Barbara Harriss-White, 231–51. London: Anthem Press.

Jeffrey, Patricia, and Roger Jeffrey. 1994. "Killing My Heart's Desire: Education and Female Autonomy in Rural North India." In *Women as Subjects: South Asian Histories*, edited by Nita Kumar, 125–71. Charlottesville: University Press of Virginia.

Jonas, Andrew E. G. 1996. "Local Labour Control Regimes: Uneven Development and the Social Regulation of Production." *Regional Studies* 30 (4): 323–38. https://doi.org/10.1080/00343409612331349688.

Kabeer, Naila. 2016. "Gender Equality, Economic Growth, and Women's Agency: The 'Endless Variety' and 'Monotonous Similarity' of Patriarchal Constraints." *Feminist Economics* 22 (1): 295–321. https://doi.org/10.1080/13545701.2015.1090009.

Kapadia, Karin. 1995a. *Siva and Her Sisters: Gender, Caste, and Class in Rural South India*. Boulder, Colarado: Westview Press.

———. 1995b. "The Profitability of Bonded Labour: The Gem-cutting Industry in Rural South India." *The Journal of Peasant Studies* 22 (3): 446–83. https://doi.org/10.1080/03066159508438583.

———. 1999. "3. Every Blade of Green: Landless Women Labourers, Production and Reproduction in South India." In *Institutions, Relations and Outcomes: A Framework and Case Studies for Gender-Aware Planning*, edited by Naila Kabeer and Ramya Subrahmanian, 80–101. New Delhi: Kali for Women.

Kaplinsky, Raphael. 2004. "Spreading the Gains from Globalization : What Can Be Learned from Value-Chain Analysis?" *Problems of Economic Transition* 47 (2): 74–115. https://doi.org/10.1080/10611991.2004.11049908.

Katiresu, S. 1905. *A Hand Book to the Jaffna Peninsula and a Souvenir of the Opening of the Railway to the North*. Jaffna: American Ceylon Mission Press.

Khera, Reetika, and Karuna Muthiah. 2010. "Slow but Steady Success." *The Hindu*, April 24, 2010. http://www.thehindu.com/features/magazine/slow-but-steady-success/article409087.ece.

Kipling, Rudyard. 1994. "The Mother Lodge." In *The Collected Poems of Rudyard Kipling*. Hertfordshire: Wordsworth Editions.

Krishna Kumar, K., K. Rupa Kumar, R. G. Ashrit, N. R. Deshpande, and J. W. Hansen. 2004. "Climate Impacts on Indian Agriculture." *International Journal of Climatology* 24 (11): 1375–1393. https://doi.org/10.1002/joc.1081.

Kumar, Sunaina. 2017. "The Theatre of Protest: Tamil Nadu Farmers Have Got Attention, but Will They Get Results?" *Scroll India*, April 18, 2017. https://scroll.in/article/834565/the-theattamil-nadu-farmers-unusual-protest-has-got-attention-but-will-it-get-results.

Kurien, C. T. 1989. *Dynamics of Rural Transformation. A Study of Tamil Nadu 1950-1980*. Hyderabad: Orient Longmann.

Lakshmana, KV. 2016. "Cauvery Water Row Explained: Why Tamil Nadu, Karnataka Fight over River Usage?" *Hindustan Times*, September 12, 2016. http://www.hindustantimes.com/india-news/cauvery-water-row-explained-why-tamil-nadu-karnataka-fight-over-river-usage/story-9pbepHlNQCeAXBsl25KtXL.html.

Lefebvre, Henri. 1991. *The Production of Space*. Oxford UK and Cambridge USA: Blackwell.

Lenin, V. I. 1964. "The Development of Capitalism in Russia: The Process of the Formation of a Home Market for Large-Scale Industry." In *Collected Works, Volume 3*. Moscow: Progress Publishers.

Lerche, Jens. 2007. "A Global Alliance against Forced Labour? Unfree Labour, Neo-Liberal Globalization and the International Labour Organization." *Journal of Agrarian Change* 7 (4): 425–52. https://doi.org/10.1111/j.1471-0366.2007.00152.x.

———. 2013. "The Agrarian Question in Neoliberal India: Agrarian Transition Bypassed?" *Journal of Agrarian Change* 13 (3): 382–404. https://doi.org/10.1111/joac.12026.

———. 2015. "Regional Patterns of Agrarian Accumulation in India." In *Indian Capitalism in Development*, edited by Barbara Harriss-White and Judith Heyer, 46–65. Abingdon: Routledge.

Lerche, Jens, Alpa Shah, and Barbara Harriss-White. 2013. "Introduction: Agrarian Questions and Left Politics in India." *Journal of Agrarian Change* 13 (3): 337–350. https://doi.org/10.1111/joac.12031.

Levien, Michael. 2011. "Special Economic Zones and Accumulation by Dispossession in India." *Journal of Agrarian Change* 11 (4): 454–483. https://doi.org/10.1111/j.1471-0366.2011.00329.x.

Ludden, David. 2000. "Agrarian Histories and Grassroots Development." In *Agrarian Environments: Resources, Representation and Rule in India*, edited by Arun Agrawal and K. Sivaramakrishnan, 251–64. Durham and London: Duke University Press.

M. Rajshekhar. 2016a. "How a River in Tamil Nadu Turned into a Sewage Canal." *Scroll India*, August 26, 2016. https://scroll.in/article/812450/how-a-river-in-tamil-nadu-turned-into-a-sewage-canal.

———. 2016b. "Can the Courts Save India's Rivers from Pollution? Tirupur Shows the Answer Is No." *Scroll India*, August 30, 2016. https://scroll.in/article/812470/can-the-courts-save-indias-rivers-from-pollution-tirupur-shows-the-answer-is-no.

Mahadevan, Raman, and M. Vijayabaskar. 2014. "The Making of Non-Corporate Capital: Some Historical & Contemporary Entrepreneurial Narratives from Tiruppur, Tamil Nadu." *Nehru Memorial Museum and Library Occasional Paper*, Perspectives in Indian Development, , no. 33: 1–43.

Malm, Andreas. 2017. *The Progress of This Storm: Nature and Society in a Warming World*. London: Verso.

Marx, Karl. 1976. *Capital: Critique of Political Economy, Volume I*. London: Penguin.

———. 1981. *Capital: Critique of Political Economy, Volume III*. London: Penguin.

Mathew, Roy. 2012. "Kerala Bans Pan Masala and Its Variants." *The Hindu*, December 6, 2012. http://www.thehindu.com/news/national/kerala/kerala-bans-pan-masala-and-its-variants/article3455962.ece.

Mazumder, Indrani, and N. Neetha. 2011. "Gender Dimensions: Employment Trends in India, 1993-94 to 2009-10." Occasional Paper 56. New Delhi: Centre for Women's Development Studies.

McBride, Jeffrey S, David G Altman, Melissa Klein, and Wain White. 1998. "Green Tobacco Sickness." *Tobacco Control* 7 (3): 294–98. https://doi.org/10.1136/tc.7.3.294.

McMichael, Philip. 2007. "Peasant Prospects in the Neoliberal Age." *New Political Economy* 11 (3): 407–18.

Mezzadri, Alessandra. 2015. "Garment Sweatshop Regimes: The Informalisation of Social Responsibility over Health and Safety Provisions." Centre for Development Policy and Research Working Paper 30/15. http://eprints.soas.ac.uk/19605/1/Mezzadri_WorkingPaper.pdf.

———. 2016. "Class, Gender and the Sweatshop: On the Nexus between Labour Commodification and Exploitation." *Third World Quarterly* 37 (10): 1877–1900. https://doi.org/10.1080/01436597.2016.1180239.

———. 2017. *The Sweatshop Regime: Labouring Bodies, Exploitation, and Garments Made in India*. Cambridge: Cambridge University Press.

Mezzadri, Alessandra, and Ravi Srivastava. 2015. "Labour Regimes in the Indian Garment Sector: Capital-Labour Relations, Social Reproduction and Labour Standards in the National Capital Region." Report of the ESRC-DFID Research Project 'Labour Standards and the Working Poor in China and India.' London: Centre for Development and Policy Research. https://www.soas.ac.uk/cdpr/publications/reports/file106927.pdf.

Mies, Maria. 1986. *Patriarchy and Accumulation on a World Scale*. New York: Zed Books.

Millie Nihila. 1993. "Development Process and Status of Women: Tanning Industry in Tamil Nadu." *Economic and Political Weekly* 28 (41): 2220–28.

Mohanty, B. B. 2016. "Introduction. Agrarian Transition: From Classic to Current Debates." In *Critical Perspectives on Agrarian Transition: India in the Global Debate*, edited by B. B. Mohanty, 1–40. Abingdon: Routledge.

Mollinga, Peter. 2010. "The Material Conditions of a Polarized Discourse: Clamours and Silences in Critical Analysis of Agricultural Water Use in India." *Journal of Agrarian Change* 10 (3): 414–36.

Mooij, Jos. 1999. "The Black Box of the State: Studying the Politics of Food Distribution Policy." In *Agricultural Markets from Theory to Practice: Field Experience in Developing Countries*, edited by Barbara Harriss-White, 323–47. London: Palgrave Macmillan UK. http://dx.doi.org/10.1007/978-1-349-27273-0_15.

Moore, Jason. 2015. *Capitalism in the Web of Life*. London: Verso.

Moreno-Peñaranda, Raquel, and Giorgos Kallis. 2010. "A Coevolutionary Understanding of Agroenvironmental Change: A Case-Study of a Rural Community in Brazil." *Special Section: Coevolutionary Ecological Economics: Theory and Applications* 69 (4): 770–78. https://doi.org/10.1016/j.ecolecon.2009.09.010.

Mosse, David. 2018. "Caste and Development: Contemporary Perspectives on a Structure of Discrimination and Advantage." *World Development* 110 (October): 422–36. https://doi.org/10.1016/j.worlddev.2018.06.003.

Mr and Mrs C, farmers. 2015. Interview with Mr and Mrs C, farmers, Erode district, 16.04.2015.

Mr and Mrs O, farmers and traders. 2015. Interview with Mr and Mrs O, farmers and traders, Erode district, 10.01.2015.

Mr B, farmer. 2015a. Interview with Mr B, farmer, Salem district, 19.01.2015.

———. 2015b. Interview with Mr B, farmer, Erode district, 16.04.2015.

Mr D, farmer. 2014. Interview with Mr D, farmer, Tiruppur district, 26.12.2014.

Mr E, farmer and trader. 2015. Interview with Mr E, farmer and trader, Salem district, 19.01.2015.

Mr F, farmer. 2015. Interview with Mr F, farmer, Salem district, 19.01.2015.

Mr F, farmer and trader. 2015. Interview with Mr F, farmer and trader, Tiruppur district, 17.04.2015.

Mr G, farmer. 2015. Interview with Mr G, farmer, Salem district, 19.01.2015.

Mr G, trader. 2015. Interview with Mr G, trader, Tiruppur district, 20.04.2015.

Mr H, farmer. 2015. Interview with Mr H, farmer, Salem district, 20.01.2015.

Mr H, trader. 2015. Interview with Mr H, trader, Tiruppur district, 20.04.2015.

Mr I, farmer. 2015. Interview with Mr I, farmer, Erode district, 20.01.2015.

Mr I, trader. 2015. Interview with Mr I, trader, Tiruppur district, 20.04.2015.

Mr J, trader. 2015. Interview with Mr J, trader, Erode district, 21.04.2015.

Mr K, farmer. 2015. Interview with Mr K, farmer, Erode district, 09.01.2015.

Mr M, farmer. 2015a. Interview with Mr M, farmer, Erode district, 10.01.2015.

———. 2015b. Interview with Mr M, farmer, Tiruppur district, 22.04.2015.

Mr N, farmer. 2015a. Interview with Mr N, farmer, Erode district, 10.01.2015.

———. 2015b. Interview with Mr N, farmer, Tiruppur district, 22.04.2015.

Mr N, labourer and farmer. 2015. Interview with Mr N, labourer and farmer, Tiruppur district, 25.01.2015.

Mr O, farmer. 2015. Interview with Mr O, farmer, Tiruppur district, 25.01.2015.

Mr P, farmer and trader. 2015a. Interview with Mr P, farmer and trader, Erode district, 10.01.2015.

———. 2015b. Interview with Mr P, farmer and trader, Tiruppur district, 24.04.2015.

Mr Q, farmer. 2015. Interview with Mr Q, farmer, Erode district, 10.01.2015.

Mr Q, farmer and commission Agent. 2015. Interview with Mr Q, farmer and commission agent, Dindigul district, 27.01.2015.

Mr S, trader. 2015. Interview with Mr S, trader, Dindigul district, 13.01.2015.

Mr W, farmer and trader. 2015. Interview with Mr W, farmer and trader, Erode district, 16.04.2015.

Mr Y, trader. 2015. Interview with Mr Y, trader, Salem district, 18.01.2015.

Mr Z, farmer and trader. 2015. Interview with Mr Z, farmer and trader, Erode district, 18.01.2015.

Mrs P, farmer. 2015. Interview with Mrs P, farmer, Dindigul district, 27.01.2015.

Mrs W, farmer. 2015. Interview with Mrs W, farmer, Coimbatore district, 16.01.2015.

Münster, Daniel. 2016. "Agro-Ecological Double Movements? Zero Budget Natural Farming and Alternative Agricultures after the Neoliberal Crisis in Kerala." In *Critical Perspectives on*

Agrarian Transition: India in the Global Debate, edited by B. B. Mohanty, 222–44. Abingdon: Routledge.

Muthiah, S. 2014. "When the Postman Knocked." *The Hindu*, June 30, 2014.

Nadkarni, M.V. 1987. *Farmers' Movements in India*. Ahmedabad: Allied Publishers.

Nagaraj, K., and J. Jeyaranjan. 2006. "Tamil Nadu Economy: Contours of Change - A Secondary Data Exploration." Chennai: Madras Institute of Development Studies.

Narayanamoorthy, A. 2005. "Economics of Drip Irrigation in Sugarcane Cultivation: Case Study of a Farmer from Tamil Nadu." *Indian Journal of Agricultural Economics* 60 (2): 235–48.

———. 2006. "State of India's Farmers." *Economic and Political Weekly* Vol. 41 (Issue No. 06).

———. 2015. "Groundwater Depletion and Water Extraction Cost: Some Evidence from South India." *International Journal of Water Resources Development* 31 (4): 604–17. https://doi.org/10.1080/07900627.2014.935302.

Natarajan, Nithya. 2018. "Moving Past the Problematisation of Tobacco Farming: Insights from South India." *Tobacco Control* 27 (3): 272–277. https://doi.org/10.1136/tobaccocontrol-2016-053471.

Nayeri, Kamran. 2016. "'Capitalism in the Web of Life' – A Critique." *Climate and Capitalism*, July 19, 2016. http://climateandcapitalism.com/2016/07/19/capitalism-in-the-web-of-life-a-critique/.

Neetha, N. 2006. "'Invisibility' Continues?" *Economic and Political Weekly* 41 (32): 3497–99.

Neetha, N. 2013. "Inequalities Reinforced? Social Groups, Gender and Employment." Occasional Paper 59. Centre for Women's Development Studies. http://www.cwds.ac.in/wp-content/uploads/2016/09/InequalitiesReinforced59.pdf.

Neve, Geert De, and Grace Carswell. 2011. "NREGA and the Return of Identity Politics in Western Tamil Nadu, India." *Forum for Development Studies* 38 (2): 205–10. https://doi.org/10.1080/08039410.2011.568185.

Nicholson, Frederick Augustus. 2011. *Manual of the Coimbatore District in the Presidency of Madras*. London: British Library, Historical Print Editions.

NSSO. 2014. "Key Indicators of Situation of Agricultural Households in India." NSS 70th Round. New Delhi: Ministry of Statistics and Programme Implementation, Government of India.

O'Laughlin, Bridget. 2013. "Land, Labour and the Production of Affliction in Rural Southern Africa." *Journal of Agrarian Change* 13 (1): 175–96. https://doi.org/10.1111/j.1471-0366.2012.00381.x.

Orwell, George. 1990. *Coming up for Air*. London: Penguin Books.

Oya, Carlos, and Nicola Pontara. 2015. "13. Improving the Functioning of Rural Labour Markets and Working Conditions: Towards a Policy Agenda." In *Rural Wage Employment in Developming Countries: Theory, Evidence and Policy*, edited by Carlos Oya and Nicola Pontara, 329–46. Abingdon: Routledge.

Palanisami, K., A. Vidhyavathi, and C. R. Ranganathan. 2008. "Wells for Welfare or Illfare? Cost of Groundwater Depletion in Coimbatore, Tamil Nadu, India." *Water Policy* 10 (4): 391–407. https://doi.org/10.2166/wp.2008.150.

Panitch, Leo, and Colin Leys. 2000. "Preface to The Socialist Register 2001." In *The Socialist Register 2001*, edited by Leo Panitch and Colin Leys, vii–xi. London: Merlin Press.

Parthasarathy, Suhrith. 2016. "All in the Spirit of Equality." *The Hindu*, April 1, 2016. http://www.thehindu.com/opinion/lead/keralas-liquor-policy-all-in-the-spirit-of-equality/article8061657.ece.

Patnaik, Utsa. 1972a. "Economics of Farm Size and Farm Scale: Some Assumptions Re-Examined." *Economic and Political Weekly* 7 (31/33): 1613–24.

———. 1972b. "Economics of Farm Size and Farm Scale: Some Assumptions Re-Examined." *Economic and Political Weekly* 7 (31/33): 1613–24.

———. 1976. "Class Differentiation within the Peasantry: An Approach to Analysis of Indian Agriculture." *Economic and Political Weekly* 11 (39): A82–101.

———. , ed. 1990. *Agrarian Relations and Accumulation: The "mode of Production" Debate in India*. Bombay, Delhi, Calcutta, Madras: Oxford University Press.

———. 2011. "Part I: The Agrarian Question in the Neoliberal Era." In *The Agrarian Question in the Neoliberal Era, Primitive Accumulation and the Peasantry*, by Utsa Patnaik and Sam Moyo, 7–59. Oxford: Pambazuka Press.

Pattenden, Jonathan. 2016a. *Labour, State and Society in Rural India: A Class-Relational Approach*. Manchester: Manchester University Press.

———. 2016b. "Working at the Margins of Global Production Networks: Local Labour Control Regimes and Rural-Based Labourers in South India." *Third World Quarterly* 37 (10): 1809–33. https://doi.org/10.1080/01436597.2016.1191939.

Pitcherit, David. 2009. "'Workers, Trust Us!': Middlemen and the Rise of the Lower Castes in Andhra Pradesh." In *India's Unfree Workforce: Of Bondage Old and New*, edited by Jan Breman, Isabelle Guérin, and Aseem Prakash, 259–83. New Delhi: Oxford University Press.

Ploeg, Jan Douwe van der. 2008. *The New Peasantries: Struggles for Autonomy and Sustainability in an Era of Empire and Globalization*. London: Earthscan Publications Ltd.

———. 2010. "The Peasantries of the Twenty-First Century: The Commoditisation Debate Revisited." *The Journal of Peasant Studies* 37 (1): 1–30. https://doi.org/10.1080/03066150903498721.

Pritchard, Bill, C. P. Gracy, and Michelle Godwin. 2010. "The Impacts of Supermarket Procurement on Farming Communities in India: Evidence from Rural Karnataka." SSRN Scholarly Paper ID 1619035. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=1619035.

PTI. 2016. "Revised MGNREGA Wages Put States in a Quandary." *The Indian Express*, April 3, 2016. http://indianexpress.com/article/india/india-news-india/mgnrega-wages-states-in-a-quandary-over-new/.

Radjou, Navi, and Nirupam Bajpai. 2000. "Raising Global Competitiveness of Tamil Nadu's IT Industry." *Economic and Political Weekly* 35 (06): 449–65.

Ramachandran, V. K. 2011. "The State of Agrarian Relations in India Today." *The Marxist* XXVII (1–2): 51–89.

Rao, J. Mohan. 1999. "Agrarian Power and Unfree Labour." *The Journal of Peasant Studies* 26 (2–3): 242–62. https://doi.org/10.1080/03066159908438708.

Reddy, A Amarender. 2015. "Growth, Structural Change and Wage Rates in Rural India." *Economic and Political Weekly* l: 56–65.

Reddy, K. Srinath, and Prakash C. Gupta. 2004. "Report on Tobacco Control in India." New Delhi: Ministry of Health and Family Welfare, Government of India; Centers for Disease Control and Prevention, USA; and World Health Organization.

Rigg, Jonathan, Albert Salamanca, and Michael Parnwell. 2012. "Joining the Dots of Agrarian Change in Asia: A 25 Year View from Thailand." *World Development* 40 (7): 1469–81. http://dx.doi.org/10.1016/j.worlddev.2012.03.001.

Rigg, Jonathan, Albert Salamanca, and Eric C. Thompson. 2016. "The Puzzle of East and Southeast Asia's Persistent Smallholder." *Journal of Rural Studies* 43: 118–33. https://doi.org/10.1016/j.jrurstud.2015.11.003.

Roesch, Marc, G. Venkatasubramanian, and Isabelle Guérin. 2009. "11. Bonded Labour in the Rice Mills: Fate or Opportunity?" In *India's Unfree Workforce: Of Bondage Old and New*, edited by Jan Breman, Isabelle Guérin, and Aseem Prakash, 284–311. New Delhi: Oxford University Press.

Royle, J. D. 1840. *Essay on the Productive Resources of India*. London: W H Allen and Co.

Salzinger, Leslie. 2003. *Genders in Production: Making Workers in Mexico's Global Factories*. Berkeley, Los Angeles and London: University of California Press.

Selwyn, Ben. 2013. "Social Upgrading and Labour in Global Production Networks: A Critique and an Alternative Conception." *Competition & Change* 17 (1): 75–90. https://doi.org/10.1179/1024529412Z.00000000026.

Sen, Amartya. 1962. "An Aspect of Indian Agriculture." *Economic Weekly* Annual Number 14.

Sengupta, Arjun K., Ravi Srivastava, K. P. Kannan, V. K. Malholtra, B. N. Yugandhar, and T. S. Papola. 2009. "The Challenge of Employment in India: An Informal Economy Perspective." Volume 1. New Delhi: National Commission for Enterprises in the Unorganised Sector, Government of India.

Shah, Alpa, and Barbara Harriss-White. 2011. "Resurrecting Scholarship on Agrarian Transformations." *Economic and Political Weekly* XLVI (39): 13–18.

Shah, Alpa, Jens Lerche, Richard Axelby, Dalel Benbabaali, Brendan Donegan, Jayaseelan Raj, and Vikramaditya Thakur. 2017. *Ground Down by Growth: Tribe, Caste, Class and Inequality in Twenty-First-Century India*. London: Pluto Press.

Shiva, Vandana. 2016. *The Violence of the Green Revolution: Third World Agriculture, Ecology and Politics*. Lexington: University Press of Kentucky.

Singh, R.B. 2000. "Environmental Consequences of Agricultural Development: A Case Study from the Green Revolution State of Haryana, India." *Agriculture, Ecosystems & Environment* 82 (1): 97–103. https://doi.org/10.1016/S0167-8809(00)00219-X.

Sinha, Archana. 2007. "Farm Sector, Non-Farm Employment and Rural Livelihood: A Study." *Social Change* 37 (1): 50–76. https://doi.org/10.1177/004908570703700104.

Sinha, D N, R S Abdulkader, and P C Gupta. 2016. "Smokeless Tobacco-Associated Cancers: A Systematic Review and Meta-Analysis of Indian Studies." *International Journal of Cancer* 138 (6): 1368–79.

Sinha, Subir, Amita Baviskar, and Kavita Philip. 2006. "Rethinking Indian Environmentalism. Industrial Pollution in Delhi and Fisheries in Kerala." In *Forging Environmentalism. Justice, Livelihood, and Contested Environments*, edited by J. Bauer, 189–256. Armonk, New York: M. E. Sharpe.

Sivaramakrishnan, K. 2009. "Forests and the Environmental History of Modern India." *The Journal of Peasant Studies* 36 (2): 299–324. https://doi.org/10.1080/03066150902928280.

SOAS. 2015. "SOAS Research Ethics Policy." https://www.soas.ac.uk/researchoffice/ethics/.

Soundarapandian, M., and N. Siva Kumar. 2002. "Women in Dairy Industry: A Study in Dindigul District." In *Small Scale Industries: Problems of Small-Scale Industries*, edited by Mookkiah Soundarapandian, 1:117–27. New Delhi: Concept Publishing Company.

Srinivas, M. N. 1969. *India: Social Structure*. New Delhi: Ministry of Information and Broadcasting, Government of India.

Srinivasan, K., and Sanjay Kumar. 1999. "Economic and Caste Criteria in Definition of Backwardness." *Economic and Political Weekly* 34 (42/43): 3052–57.

Srinivasan, Veena, D. Suresh Kumar, Pennan Chinnasamy, Swati Sulagna, D. Sakthivel, P. Paramasivam, and Sharachchandra Lele. 2014. "Water Management in the Noyyal River Basin: A Situational Analysis." Environment and Development Discussion Paper 2. Bangalore: Ashoka Trust for Research in Ecology and Environment.

Staff Reporter. 2016a. "Coconut Trees Hit by Leaf Blight Disease." *The Hindu*, June 6, 2016. http://www.thehindu.com/news/national/tamil-nadu/Coconut-trees-hit-by-leaf-blight-disease/article14387762.ece.

———. 2016b. "Subsidy for Drip Irrigation." *The Hindu*, September 7, 2016. http://www.thehindu.com/news/national/tamil-nadu/Subsidy-for-drip-irrigation/article14626676.ece.

State Planning Commission. 2012. "Twelfth Five Year Plan, Tamil Nadu, 2012-2017: Overview." Chennai, Tamil Nadu.

Stokes, Eric. 1978. *The Peasant and the Raj: Studies in Agrarian Society and Peasant Rebellion in Colonial India*. New York and London: Cambridge University Press.

Swaminathan, M. S., and P. C. Kesavan. 2012. "Agricultural Research in an Era of Climate Change." *Agricultural Research* 1 (1): 3–11. https://doi.org/10.1007/s40003-011-0009-z.

Taylor, David. 2012. "The End of the Sun." The Life and Death of Stars (David Taylor's Science Essays). 2012. http://faculty.wcas.northwestern.edu/~infocom/The%20Website/end.html.

Taylor, Marcus. 2013. "Liquid Debts: Credit, Groundwater and the Social Ecology of Agrarian Distress in Andhra Pradesh, India." *Third World Quarterly* 34 (4): 691–709. https://doi.org/10.1080/01436597.2013.786291.

———. 2015. *The Political Ecology of Climate Change Adaptation*. Abingdon: Routledge.

TFI, WHO. 2017. "Second-Hand Tobacco Smoke." Tobacco Free Initiative of the World Health Organisation. 2017.

Thankappan, K. R., and C. U. Thresia. 2007. "Tobacco Use & Social Status in Kerala." *The Indian Journal of Medical Research* 126 (4): 300–308.

Thompson, Paul, and Chris Smith. 2000. "Follow the Redbrick Road." *International Studies of Management & Organization* 30 (4): 40–67. https://doi.org/10.1080/00208825.2000.11656799.

Thorat, Amit. 2010. "Ethnicity, Caste and Religion: Implications for Poverty Outcomes." *Economic and Political Weekly* 45 (51): 47–53.

Thorat, Sukhadeo, and Katherine S. Newman. 2007. "Caste and Economic Discrimination: Causes, Consequences and Remedies." *Economic and Political Weekly* 42 (41): 4121–24.

Thorner, Alice. 1982. "Semi-Feudalism or Capitalism? Contemporary Debate on Classes and Modes of Production in India." *Economic and Political Weekly* 17 (51): 2061–66.

Thorner, Daniel, Basile Kerblay, and R. E. F. Smith, eds. 1986. *A. V. Chayanov on The Theory of the Peasant Economy*. Madison: The University of Wisconsin Press.

Thurston, E. 1913. *The Madras Presidency with Mysore, Coorg and Associated States*. Cambridge: Cambridge University Press.

TN Agriculture Department. 2012. "Tamil Nadu Irrigated Agriculture Modernization and Waterbodies Restoration and Management (TN IAMWARM) Project." Agriculture Department, Government of Tamil Nadu. http://www.tn.gov.in/scheme/data_view/27140.

TNAU. 2009. "Season and Crop Report, Tamil Nadu." Chennai: Department of Economics and Statistics, Chennai.

TNN. 2017. "Gutka Freely Available in Tamil Nadu despite Ban: Study." *The Times of India*, May 21, 2017, TOI City edition. http://timesofindia.indiatimes.com/city/chennai/gutka-freely-available-in-state-despite-ban-study/articleshow/58769690.cms.

Tobacco Board. 1975. "The Tobacco Board Act, 1975." Tobacco Board, Guntur. http://tobaccoboard.com/pdf/tb_act_1975.pdf.

———. 2013. "Tobacco Board Annual Report." Guntur, Andhra Pradesh: Tobacco Board India. http://tobaccoboard.com/admin/publicationsfiles/AR_2012_2013_Eng.pdf.

Tobacco Board India. 2017. "Tobacco Board Annual Report 2016-17." Guntur, Andhra Pradesh: Department of Commerce, Government of India. https://tobaccoboard.com/admin/publicationsfiles/AR16-17ENG.pdf.

TOI. 2008. "Kongu Vellalar Goundars Seek MBC Status." *Times of India*, January 9, 2008, City Edition edition. http://timesofindia.indiatimes.com/city/chennai/Kongu-Vellalar-Goundars-seek-MBC-status/articleshow/3429697.cms.

Vijayabaskar, M. 2010. "Saving Agricultural Labour from Agriculture: SEZs and Politics of Silence in Tamil Nadu." *Economic and Political Weekly* 45 (06): 36–43.

Vijayabaskar, M., and Ajit Menon. 2017. "Peripheral Agriculture? Macro and Micro Dynamics of Land Sales and Land Use Changes in the 'Rural' Economy of Kancheepuram." In *Political*

Economy of Contemporary India, edited by R. Nagaraj and Motiram Sripad, 205–29. Cambridge: Cambridge University Press.

Vijayabaskar, M., and Andrew Wyatt. 2013. "Economic Change, Politics and Caste: The Case of the Kongu Nadu Munnetra Kazhagam." *Economic and Political Weekly* XLVIII (48): 103–11.

Vydhianathan, S., and R. K. Radhakrishnan. 2010. "Behind the Success Story of Universal PDS in Tamil Nadu." *The Hindu*, August 10, 2010. http://www.thehindu.com/opinion/op-ed/behind-the-success-story-of-universal-pds-in-tamil-nadu/article562922.ece.

Weis, Tony. 2007. *The Global Food Economy: The Battle for the Future of Farming*. Canada: Fernwood.

Wittman, Hannah. 2009. "Reworking the Metabolic Rift: La Vía Campesina, Agrarian Citizenship, and Food Sovereignty." *The Journal of Peasant Studies* 36 (4): 805–26. https://doi.org/10.1080/03066150903353991.

World Bank. 2004. "Tamil Nadu Agricultural Development: Final Report." Washington DC: World Bank.

WRD. 2017. "Coimbatore Region." Water Resources Department. http://www.wrd.tn.gov.in/coimbatoreregion.htm.

Yadu, C. R. 2016. "Agrarian Question in India." *Economic and Political Weekly* Vol. 51 (Issue No. 16).

Yamunan, Sruthisagar. 2017. "In the Cauvery Delta Region of Tamil Nadu, Farmers No Longer Consider the Summer Crop to Be Viable." *Scroll India*, July 2, 2017. https://scroll.in/article/841909/in-the-cauvery-delta-region-of-tamil-nadu-farmers-no-longer-consider-the-summer-crop-to-be-viable.